ART PRINCIPLES IN HOUSE, FURNITURE, AND VILLAGE BUILDING

Arthur Bridgman Clark

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ART PRINCIPLES IN HOUSE, FURNITURE, AND VILLAGE BUILDING

ART PRINCIPLES IN HOUSE, FURNITURE, AND VILLAGE BUILDING

AN EXPOSITION OF DESIGNING PRINCIPLES WHICH EVERY HOUSE BUILDER, FURNITURE USER, AND VILLAGE DWELLER SHOULD KNOW

BY

ARTHUR BRIDGMAN CLARK, M. AR.

ARCHITECT

PROFESSOR IN DIVISION OF GRAPHIC ART OF STANFORD UNIVERSITY, CALIFORNIA

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INTRODUCTION

Well-designed houses, cities, villages, yards, and furniture are an essential and integral part of worthy civilization. And so closely do the possibilities of individual attainment in these directions depend upon widespread culture that it is a serious national concern to make knowledge in this field general.

Ignorance in art is more dangerous than illiteracy. Furniture, houses, and towns are being built constantly—either well designed or poorly designed. Mistakes in street planning made one or two hundred years ago are still obstacles to the dignity and beauty of many cities, and mistakes made today will cause annoyance hundreds of years hence. The same statement holds with regard to house building. This book aims to meet this situation in the most practical way by explaining the principles of design in simple terms and illustrating them with such familiar material that everyone, builders of small houses, of large houses, and those who lay out residence tracts, may feel their responsibility.

To possess precise working methods in observation of good art, and to apply these methods constantly in observation of houses, gardens, and cities is to develop a knowledge of the "reasons why" for likes and dislikes. If enough people "reason why," the result will be a national art consciousness of design, the basis of a critical public sentiment which it will be dangerous to offend. No condition of what we call culture is more to be desired.

The book is an outgrowth of classroom lectures, the illustrative material for which is found in part within a half day's automobile ride of the lecture room. This material is visited and studied by the help of photographs, by both verbal and drawing analyses of the examples considered. Other illustrative material has been gathered from afar, but it is chosen with the aim of stimulating study and clarifying fundamental principles as applied to all of the examples which one sees constantly, rather than to afford an encyclopedia of brilliant examples (the only way to make art knowledge useful). It is hoped that other house lovers and art teachers may be inspired to apply art principles to an intensive study of the houses and yards of their neighborhoods, and also to study the excellent examples which are illustrated in the architectural magazines, and so develop this form of art into an habitual and vital part of life.

People about to build (even though the smallest of houses) are advised most

emphatically, both for profit, for pleasure, and as a public duty, to employ an architect of full professional training—the best obtainable. He will save an owner the amount of his fee in the first cost of the building, and he will give the house art value, and art value is what none but the skilled and trained designer can create in building. Art value is also the quality which makes a building last. It is believed that this book will prepare appreciative and stimulating clients for skilled architects.

Grateful acknowledgement is made to the people who, in consideration of the service to be rendered thereby, have allowed their homes to be photographed or their plans to be published, and also to those who have furnished maps and photographs of development projects. The names of architects and of owners, when known, have been printed in the proper places.

Arthur Bridgman Clark.

Stanford University, California,
January, 1921.

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CHAPTER I.

COMPONENT PARTS AND "BLOCK" ORGANIZATION OF EXTERIORS

Beauty results from certain particular relations or parts of a thing, whether that thing be a statue, a costume, a garden, a house, or a city. Even a single line, if it is beautiful, is so because of the relation of its successive points.

The esthetic laws which govern relations of parts to produce beauty are: dominance (or its converse, subordination), harmony, repetition, balance, and rhythmic change. In every beautiful object the operation of these laws may be discovered.

Houses in their block forms consist of parts which are subject to this esthetic or beautiful organization; these parts are classified and named as follows: primary masses (or blocks), secondary and tertiary masses, connecting links, extensions, and details. The first condition toward an understanding of design in houses is a clear grasp of the artistic function of these parts in their block-form organization. This is especially important in appreciating house design from the exterior.

A primary mass is one which has independent predominance through some easily recognized distinction. This distinction may be due to predominant size, position, embellishment, vertical accent, width of eaves, or some particular feature which gives it predominance. The primary mass usually has the four eave corners or "shoulders" of its roof standing independently above adjacent parts.

A fundamental law of esthetics is that "oppositions assert, similarities subordinate"; thus it is that vertical lines standing upright (by their own vitality apparently) and opposing the extensive horizontals of the earth's surface are more assertive than horizontal lines which lie quiescent and parallel. Angles also concentrate attention by converging on a point, so that gables having both height and angles are assertive and predominant. Roofs, silhouetted against the sky, form the most prominent boundaries, and hence the relative sizes and heights of roof areas are frequent keys to a determination of relative order and rank among the parts of a composition, as to which parts are primary and which secondary and subordinate. Attention to roofs is important.

An understanding of the terms used in classification of house parts and of the reasons for the classification is readily gained by a study of typical examples.

Figure 1, Plate I,* is a diagram of a house in which two portions predominate by their height and by the attractive force of gable summits; the ridges of these portions are also the highest parts of the house; these are the primary masses. The portion of the house connecting these has lower walls and roof and is obviously a connecting link; the portions on either side, the ends, which are interrupted continuations of the link, are extensions; the small dormer above the main entrance is a secondary mass on the link.

* Plate I is slipped loosely into a folio of the last cover.

In viewing this diagram we should not think of it as a flat pattern on paper, but as translated into solid masses of the house, and think of the masses not merely as seen from one point of view rather than another, but as actualities in space related to the ground on which the house stands.

Figure 23, a sketch from an imaginary point of view, more clearly shows the solids which compose the house and also shows clearly the predominance of the two primary masses. In considering an actual house we view it from a series of positions and shift from point to point until we gain a conception of the entire house in its masses and relations of parts as solids. It is not always necessary to walk entirely around a house to receive the architectural impression which its designer intended; frequently the main expression is received in passing along the street and seeing first a side and front, next the front, and last the front and third side. The impression which is retained, when the comprehension is one of a unity composed of orderly subordinate parts, is an entity of the entire house as it is perceived from the series of views. To cultivate this habit of perception is desirable, and in studying the remaining figures of Plate I it will be well to look also at the photographs from which they are made and to strive to think of the houses as solid entities existing in three dimensions. The figures in the brackets of Plate I refer to the photographs on the following pages, and the figures 1, 2, 3, 4, and 5 on the drawings stand respectively for primary mass, secondary mass, tertiary mass, extension, and connecting link.

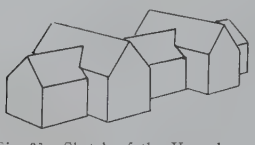


Fig. 23. Sketch of the Hoag house, showing its block organization.

It is possible at times to enjoy each front separately, as the contour of a house with its background frequently composes best from some particular viewpoint, and that not always a comprehensive one, but this sort of interest is secondary or incidental and not at all comparable in value with an all-comprehending understanding of the composition which includes the whole block relation.

Returning to Figure 1, Plate I, one might question the logic of the classification as previously stated and feel rather that the house is made up of one primary mass (consisting of what we have previously called connecting link and extensions), and two secondary masses (consisting of what we have previously called primary masses). The argument for the idea first given is that from many points of view the two parts appear more assertive, more as entities from many sides of the house, their four shoulders are distinct, while the three lower portions are quite violently interrupted continuations of each other, each part with a different function, and are not as easily seen from as many directions. A study of the examples which follow will confirm the logic of this contention.

In Figure 2, Plate I, the relationships of Figure 1 are reversed; what were the link and extensions of Figure 1 are now made taller until they become united in one great predominant mass with a dominating roof with an unbroken ridge; this is unmistakably the primary mass. The twin gables are still very assertive and of commanding importance in the composition, but they lean

back upon the large mass and are not visible from as many directions as before; they have but two eave angles or "shoulders" visible, and are clearly secondary masses.

In Figure 3, Plate I (an imaginary house), the three gables stand up individually and assertively with four shoulders, each clear of all other parts; hence they constitute three equal primary masses, and the part which in Figure 2 was one primary mass has here become two links and two extensions.

The extension is capable of indefinite horizontal prolongation, but while it remains lowly it will remain subordinate; notice Figure 21, Plate I.

The reader will do well, in order to test this method of classification, to look at the remaining diagrams of Plate I, or better still, at the cuts of the houses which they represent on the following pages of this book, without reading the notes beneath them, to see if their block masses are easily distinguished and classified.

Figure 4, Plate I, and Figure 24, show "Homewood," a famous example of Colonial architecture. It has a central block which dominates by height, width, depth, and its embellishment of porch with the assertive, vertical columns and triangular pediment. The large part is clearly the primary mass, and the porch which leans against it is a dependent or secondary mass. The two smaller, cubical-shaped parts on either side echo the central mass in vertical predominance and height over their immediate surroundings, and they neither lean upon nor back up against anything else. Hence, they are also primary masses—to indicate their inferiority in size to the first mass we may call them primary masses of the second order. Certain low parts connect these smaller primary masses to the central one; these are connecting links. At the extreme left end is a small portion which may be a wall or fence about a yard, or a screening trellis; this is an extension.

Fig. 24. Homewood, Baltimore, Md. "Southern Colonial" type, built in 1809. A fine example of clear block organization and of schematic design in use of the "Common Unit" in various scales, the "Diminishing Ratio" in the rhythmic reduction of the superimposed window panels, and in refined and expressive detail. (Floor plan, fig. 97.)

Fig. 25. Residence of Mrs. Mary E. Williams, El Cerrito Park, San Mateo, Cal. Geo. H. Howard, architect. The parallelisms of the long ridge, the terrace, and the right-angled driveway make for dignified unity of design. The group of tall pines adds much to the individuality of the place.

Fig. 26. A three-roomed bungalow in Palo Alto, Cal. The simplest expression of a home. (Floor plan, Plate III, No. 117.)

Fig. 27. Residence of Mrs. B. G. Allen, Palo Alto, Cal. An example of the "Colonial Revival" of the nineties, with restrained and delicate detail.

Fig. 28. Chapter House of the Kappa Kappa Gamma Sorority, Stanford University, Cal. Also an example of the slender, refined detail of the "Colonial Revival" of the nineties. Clear in block organization.

Figure 5, Plate I, might have been made from "Homewood" by omitting the smaller primary masses and links and reducing the porch and adding an extension on the right. It is a design which in form and proportion is frequently found in classic architecture.

Figure 6, Plate I, a house of great dignity in Geneva, New York, is similar to the preceding in classification, with but one extension, and with the porch enlarged until it almost becomes the primary mass. But the main roof has predominant height and width of span, while the porch is compelled to lean back upon it and hence becomes the secondary mass. The primary mass also has two gables connected by the ridge, while the porch roof has but one.

Figure 7, Plate I, shows a house clearly organized as two primary masses, a connecting link and two extensions, with the entrance constituting a secondary mass on the link.

Figure 8, Plate I, differs from the preceding by having the central part increased to a primary mass, with two flanking secondary masses and two extensions.

Figure 9, Plate I, shows an organization similar to the last, with the extensions omitted.

Figure 10, Plate I, illustrates the assertive quality of vertical lines which gives the house marked individuality. The points of the gables are further accented by acute details with good effect. The house has one primary block, one secondary and three tertiary.

Figure 11, Plate I, shows a small house which consists of one primary block and a porch which may be classed as either a detail or the most modest of secondary blocks.

Figure 12, Plate I, shows one primary mass and a dormer which is a secondary mass.

Figure 13, Plate I, has a primary mass and three gables which are equal secondary masses.

Figure 14, Plate I, has one primary mass, one secondary mass, and a tertiary mass. This is a type of house which by a slight shift in sizes may change its classification; if the front gable is enlarged above the transverse portion it becomes the primary mass.

Figure 15, Plate I, is a design of assertive dignity due to the marked verticals of the chimneys and the strongly marked and opposing roofs. The perspective sketch, Figure 29, makes clear the dominance of one roof which covers the primary mass, and the subordinate right and left secondary masses. The two chimneys, the entrance porch, and the long terrace form four tertiary masses.

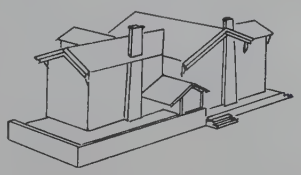


Fig. 29. Bird's-eye view of the Cubberley house, showing its block organization. (See figs. 80 and 81.)

Figure 16, Plate I, is a type of house frequently seen, with one main mass and one or two secondary masses.

Figure 17, Plate I, shows the preced-

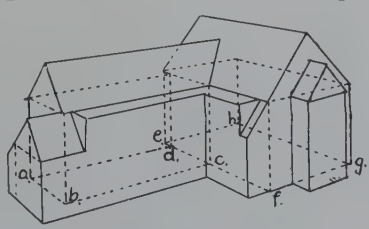


Fig. 30. Bird's-eye view of the Wintermute house, with an analysis of its block organization. The blocks resting on *a, b, c, d,* and *e, f, g, h,* are the basic forms on which the numerous parts are built.

Fig. 31. The Wintermute house from the driveway entrance.

Fig. 32. The Wintermute house from below.

ing doubled and enlarged to make two primary masses, a link, and four secondary masses, three of which are dormers and one a porch.

Figure 18, Plate I, shows two elevations of a house which has many parts, but following the principle of counting the highest mass as the primary, the short high ridge is seen to predominate and to arise from and mark the primary block. (The perspective, Figure 30, shows this more clearly.) The two secondary masses are indicated by the long ridges at right and left in Figure 18,

Fig. 33. Residence of Dr. George P. Wintermute, Tunnel Road, Berkeley, Cal. John Hudson Thomas, architect. The geometrical treatment and the multiplication of many parallel lines characterize this design as "Art Nouveau."

Fig. 34. A residence in "Pueblo" style, at Easton, near Burlingame, Cal.

Plate I, and the tertiary masses by the several chimneys. Thus the house clarifies easily into a well-organized design of many parts.

Figure 19, Plate I (elevation and plan beneath), is an agreeable house but perplexing in its block organization because minor parts have one or more sides in common with larger parts; this permits more than one interpretation of organization and is therefore ambiguous. Particularly baffling is the placing of the tallest portion above one of the three equal arches. The tallest portion is clearly to be considered as the primary

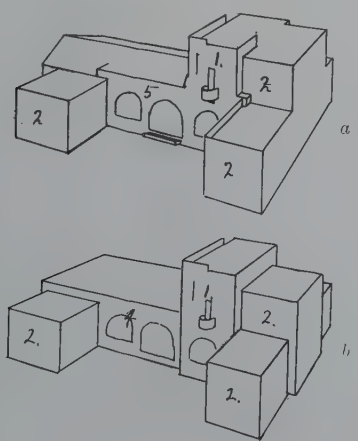


Fig. 35 a and *b*. Block organization of the preceding, difficult to classify because major and minor parts have one or more sides in common. The lower sketch shows the same house clarified by complete subordination of the minor parts.

Fig. 36. The house of fig. 34. The street approach.

mass, and includes one of the arches, while the other two must be considered as belonging to some other block. Sketch 35*a* shows the block organization as it exists with ambiguous block boundaries. Sketch 35*b* shows a method of clarifying the organization by reducing the minor parts until they cease to interfere with the boundaries of the larger parts. Whether or not 35*b* would make a better house is a matter of artistic and structural judgment, but it would produce clearness of block organization.

Figure 20, Plate I, is an unusual composition in that the highest mass is not clearly predominant. The main part of the house is indicated by the broad, low roof. The second-story portion would predominate if larger and if all of its verticals extended down to the ground, but we think of this upper mass as a smaller, separate part, merely resting on

Fig. 37. The residence of Mr. E. P. Main, Hanchett Park, San Jose, Cal.

the lower, so the best classification seems to be: one primary mass of the first order and one primary mass of the second order, and a secondary mass.

Figure 21, Plate I (Fig. 39, p. 22), is enriched by many details but still is easily classified into two equal primary masses, a connecting link and a long extension. The small dormer on the link is a secondary mass.

Figure 22, Plate I, has two unequal primary masses, the larger with a secondary mass, and a connecting link which also has a secondary mass.

One who masters this classification will find much satisfaction in applying its methods to the houses which come under his observation, and he will find a wealth of interest in the operation.

To have a method of classification enables one to observe, to think about, and to enjoy what one sees; that is, to have intelligence on the subject of house composition. The difference between intelligence and ignorance on any subject is a matter for congratulation.

To further emphasize the importance of intelligence in designing, some examples follow which show its absence.

Fig. 38. The Main residence, from the entrance side. Although with two stories this house preserves the "Bungalow" type and shows a complete blending of the "Craftsman" and Japanese influences. The use of picturesque materials—clinker brick, round stones, notched pergola rafters, and broad, low-pitched eaves—is characteristic of the style.

Fig. 39. The residence of Mrs. D. T. Murphy, Burlingame, Cal. Lewis P. Hobart, architect. The wood-paneled plaster is an element of "Elizabethan"; the flat but pointed openings of the porch and main gables are characteristic of the "Tudor."

Figure 40 shows two houses in which faulty thinking was used in design; material and labor were lavished in making enough costly embellishments to produce beautiful houses; intelligence in design was absent. In either house the primary mass is a square shape in the rear from which the peak of the widest roof rises. The apex of this main pyramid is seen near the tower of the house at the right, but one grasps the extent of this mass with difficulty because the corners which mark its lower angles are obscured. The tower would be the primary mass, but it lacks bulk and sufficient definition; its verticals below are obscured by the porch, and looking closely at the tower we see that while above the main roof it is octagonal in plan, it is square beneath, so that it lacks structural consistency. The secondary masses of the design are four in number: the two gabled portions at front and side, the tower, and the porch. The gabled portions lose dignity and individual assertiveness through loss of continuous vertical lines from ground to roof. (Compare with Figs. 25 and 28, p. 18.) These houses are two-storied, with everything possible being done to prevent unified architectural action between the superimposed parts of each story—a number of small, unlike parts so assembled that they resist unity of design rather than assist it.

This thinking of one part by itself and not in relation to the whole as a part of a large organization, is the negation and anarchy of art.

Looking back over the illustrations it will be noticed that clearness of design is assisted by placing subordinate parts upon the sides of larger parts and well within their boundaries and thus not obscuring the defining lines and edges of the main masses.

Fig. 40. Poorly organized and poorly ornamented houses, afflicted with "mill-work disease," which is: the lavish use of decorative material with ignorance of the art of design.

The dormers of Figure 78, page 41, for example, do not obstruct in any way the boundaries of the main roof. In Figure 34, page 21, the front plane of the primary mass and the side walls of the secondary masses are in one continuous plane. This makes it hard to distinguish them from this view. In Figure 28, page 18, the wall of the link is kept back of the front walls of the primary masses, and by this means assists the distinctness of expression. Although the disposition of the roofs alone conveys the idea of the block organization, it is satisfactory to have the expression of the side walls in consonance with it.

Before closing this chapter on component parts of architectural massing it should be said that while a grasp of the principles which control clear definition of parts is of fundamental importance, it is not the whole of design. Consideration of proportions, of details, the relation of the house to its site, soil, surface, and surrounding foliage, its architectural style, its planning and interior appointments, are matters of importance which will be discussed in later chapters.

Some houses may fail or partially fail

in proper distribution of parts and yet be pleasing because of well-designed individual features or well-planted grounds. In such cases we should enjoy the well-designed features, although the poor assemblage of parts will be a cause for regret. Clear thinking and an understanding of fundamental principles of design, knowing why we like a building, and basing our likes upon sound reasons, develop power in discrimination of values, and give the only satisfactory basis for permanent pleasure in architecture. The development of this power is well worth while when it is remembered that, generally speaking, the exterior or street appearance of houses belongs to the public, although the interior may belong to the dweller in the house.

CHAPTER II.

PROPORTIONS OR COMPARATIVE SIZES AND POSITIONS

This chapter contains a consideration of the relative sizes of the parts of a house, including: the relative sizes of primary masses as solids, the comparison of the first-story heights with second-story heights; the relative widths and heights of door and window openings and of wall space between them, as elements in the design of surfaces; the spacing of columns; the division of windows into smaller parts; the paneling of doors; and relative sizes of numerous details.

I. The Golden Sector

One of the oldest formulas relating to beauty of proportion is that of the "golden sector," also called the "Greek proportion," which signifies the perfect proportion. The law is stated thus: "If two lengths are to be compared the less shall be to the greater as is the greater to the sum of the two." This proportion is approximated by the figures 5 and 8. This proportion is found in the door of the Odd Fellows' Home, Washington (Fig. 41), in the whole porch of the Andrews house (Fig. 47, p. 28), and in many places, with convincing effect.

In the Odd Fellows' Home doorway, Washington, a common unit is seen in the narrow, vertical panels of the door, and the spaces beside the door; likewise decisive character in the narrow upper side panels and unity in the binding together of the whole by the elliptical top. The golden sector appears in the double-door opening, and in many of the smaller panels.

But the Greek proportion must not be used as an absolute finality for constant application. It is impossible to use this proportion in all rectangles and not always desirable when possible. For example, if the floor of a room has this proportion, the ends may also have this proportion, but the sides would have to be whatever they happened to be as a result of the first two decisions. Again, the doors of a room usually have the same height but vary in width, so only certain ones can be proportioned as five to eight.

Fig. 41. The doorway of the Odd Fellows' Home, Washington. Exemplifying proportions in the "Golden Sector," the "Common Unit," and "Decisive Character."

II. COMMON UNIT OF MEASURE

Many agreeable relations arise through this method of design, as it affords a basis for comparison of parts.

One notable example of its use occurs in the plans of Japanese houses, the rooms of which are made to exactly contain a certain number of floor mats; a three-mat room, a five-mat room, etc. (The floor mats of that country are made uniformly about three by six feet in size; hence the various rooms of the house are multiples of this unit.)

When the common unit of measure has any appreciable effect on the design it must be rather large compared with the space it measures, as the mat unit just mentioned, and also it must be visible as a unit. If a room is sixteen feet long and ten feet wide there would be no significance whatever in hanging pictures on the wall one foot rather than thirteen inches wide, but if the ceiling is divided into a small number of panels —as four, or six—it would be restful to use the panel width for doors and windows.

The Doty house, by Embury (Fig. 42) gives us a sense of unity in design

Fig. 42. The Doty house at Bound Brook, N. Y. Aymar Embury II, architect. "Dutch Colonial" style. The vertical portions of each story are similar rectangles. The column width is the "Common Unit," multiples of which make the widths of the front. One main horizontal line, the eaves, has the emphatic design preponderance.

Fig. 43. House of Mrs. William J. Grosh, San Jose, Cal. "Dutch Colonial" style. (Interior, fig. 165.)

which depends upon the common unit. This unit is the window width, which is repeated in the columns, and combined into a larger unit of three window widths. The windows themselves are either two panes or three panes wide.

The principle of similar shape and smaller size is here illustrated in the comparison of the main rectangle of the lower and that of the upper stories. This relation is shown in a diagram in which the diagonals of these rectangles are parallel, hence they are similar.

This similarity of rectangles is often embodied in reversing the position of the diagonals, which is the proportion of the Menlo Colonial (Fig. 64, p. 36).

The Dutch Colonial houses (Grosh and Martin, Figs. 43 and 44), the Miller house at Deerfield (Fig. 99, p. 54), and the Salem house (Fig. 47, p. 28) have windows of uniform size which makes apparent at a glance the perfect regularity and symmetrical balance of the whole design.

"Homewood" (Fig. 24, p. 17) has uniform windows in the large mass, also uniform although smaller windows in the smaller masses, and the wall spaces have almost the same widths as the windows. The porch is approximately one-third the width of the main mass. Thus

Fig. 44. Residence of Mr. Henry Martin, Jr., San Jose, Cal. "Dutch Colonial" style.

the principle of the "common unit" is prominent in this house in many scales.

Log Cabin Inn (Fig. 45) is a beautiful example of building up a small unit into a larger commensurable unit. Two pillars, one and one-half spaces apart, make the unit "a," which, taken twice, makes the main open space of the porch.

A *diminishing ratio* is another form of beauty. One of its manifestations occurs in the golden sector by the division of a rectangle, thus:

Fig. 46. A rectangle in the "Greek Proportion" or "Golden Sector," or "Five-Eight Rectangle."

Another form occurs in rhythmic changes of a quality. These are usually manifested in the vertical proportions. Homewood (Fig. 24, p. 17) shows window openings of three rectangles of different heights, one above the other; the basement opening, the window, and the white panel above the window.

The diminishing height is used with pleasing effect in the Zeta Psi house, Berkeley (Fig. 55, p. 30), and in the Huston house, Stanford (Fig. 54, p. 29), in each of which the second-story height is half that of the first story. "Giotto's Tower" is a notable example of agreeable variety in proportion.

Figure 47 shows the Andrew house, Salem. A study of its proportions gives an interesting exposition in design. It is a 5-8 rectangle between stone founda-

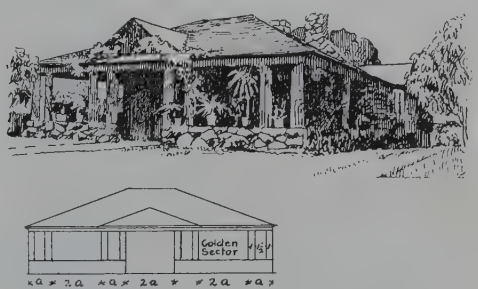


Fig. 45. Log Cabin Inn, Los Angeles, Cal. Illustrating the "Greek Proportion" and a very skillful use of the "Common Unit": the column width taken one and a half times makes the space between columns, the two columns and space between makes a commensurable unit *a*, which taken twice makes the widest space of the porch.

Fig. 47. The Andrew house, Salem, Mass. New England "Colonial" style, built in 1818, too austere in main proportions to suit modern taste, but very instructive in its design method as shown in the subdivision of its surfaces. The elaborate detail of the porch foreshadows the approaching "Greek Revival."

tion and cornice, and very austere in expression. First, the emphatic line is the cornice, with its elaborate parapet. The emphatic *spot* is the entrance porch, with its double columns. The second most important line is the water table, and the second *spot* the central window of the second story. The key to the window spacing is found in the five divisions of the cornice which represent

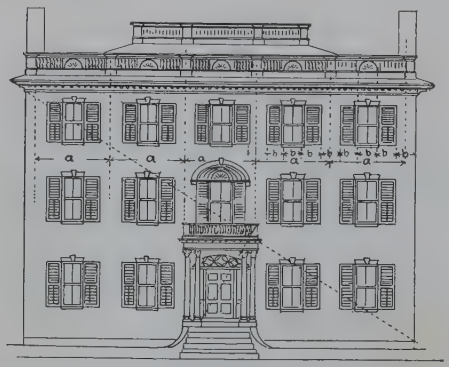


Fig. 48. Design analysis of the Andrew house, showing the large "Five-Eight Rectangle," as indicated by the diagonal line, and a similar rectangle of the porch, opposed to the first; and many uses of the "Common Unit." The elaborate balustrade of the roof is a key to the spacing of the windows below.

the five windows of each story beneath, with the curved shell form as wide as the windows. The width of brickwork between the windows is approximately twice the opening—the principle of a common unit of measure.

The porch, in its main deisgn, echoes the house with an emphatic cornice and a balustrade above. The outline of the porch beneath the cornice is a square; add columns and balustrade and it appears taller than a square. If the width of one pair of columns is called *a*, the space between the two pairs is *2a*. The square bases of the columns are exactly half the total porch width, further carrying out the principle of the common unit. The effect of this spacing is seen by observing the pillars in silhouette. The doorway itself is based on fourths, the door space being twice that of the windows at its sides, measuring in the centers of the columns. The door itself is designed with a common unit of measure, having at the top a short panel, which, doubled, gives the bottom panels, which, in turn doubled, gives the central panel. But in the arrangement with the longest panel in the middle, we have the placing which best gives to the door an expression of bottom and top, a use of the common unit, and an arrangement which is frequent. Suppose the arrangement were thus (Fig. 49). The rapid sequence would shoot our attention above the door, while with the long panel in the middle our attention rests on the door itself. The swing of the leaded "fanlight" and of the side windows is free and naive. These side windows have their lower edges opposite a door rail.

Fig. 49. Faulty sequence of diminishing rectangles in a door.

The outer ellipse of the central win-

dow is pleasing, but its filling with the semi-circle is awkward. It might be relieved by making the center a parallel elliptical curve. The details of carving

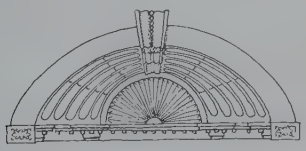


Fig. 50. A window head in the Andrew house, with circle and ellipse.

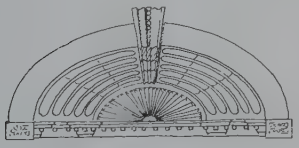


Fig. 51. A window head similar to the above, with two ellipses.

in this window-head are fine. The rhythm reaches from the center outward in larger increments. The cornice balustrade is delightful with its alternation of spindles, shell, and post. The spindles "read" upward, with three unequal portions. It is interesting to compare this expression with the panels of the door and to note that an interchange of arrangement would be wrong, at least for the door.

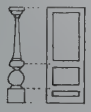


Fig. 52. The rhythmic increase of sizes upward, appropriate for spindles but wrong for doors.

The left rear corner of this house contains a porch with two-storied columns, an unusual arrangement.

One interesting matter of design is the repetition of the shell forms of the roof in this window head. A device of this kind, repeating the same element in remote parts of the composition, binds the whole together.

Returning to the main design of the front, we see a central vertical indicated by the porch and central window, but because the third-story windows do not recognize the vertical, we are disturbed. Suppose it were thus with the arch at the top, we would feel better satisfied.

Fig. 53. The Pickman-Shreve-Little house, Salem, with its central axis accented by having the semi-circle at the top, and a Paladian window in the center. Compare with the design of fig. 47.

III. CHARACTER IN DECISIVE DIFFERENCE OF SIZES AND SHAPES (THE PRINCIPLE OF SUBORDINATION)

Pleasing character in proportion results when the things compared are practically identical or else decidedly and clearly different. Thus, a square has character, it is perfection of its kind, a finality. (The square may not be pleasing as an elevation of a building, but it is desirable in many situations, as in pavements.) An oblong with one side clearly in excess of the other, as two to one, clearly has the character of an oblong, and decisively meets the requirements of one, while one with sides proportioned about eight to nine has

Fig. 54. Residence of Professor C. A. Huston, Stanford University, Cal. William P. Knowles, architect. In its broad, low proportions exemplifying "Decisive Character."

Fig. 55. Chapter house of the Zeta Psi Fraternity, Berkeley, Cal. Charles Peter Weeks, architect. Illustrating the use of the "Common Unit" and "Decisive Character."

little distinction as an oblong and is imperfect as a square. It may be a useful or unavoidable shape in certain designs, but it will not please on account of any individual distinction of shape.

Indeed the designs which please us in proportion often do so not because of any occult ratio, but because the ratio of parts which will naturally be contrasted is visibly one or more than one. The Huston house (Fig. 54) is pleasing because it is decisively broad and low. The plastered part is decidedly less in height than the shingled part. The small balcony and window group above it are also broad and low. It does not seem to be important that the windows shall have the same proportion of height to width which is found in the whole front, but that they shall be also broad and low.

The house of Figure 55 also has decisive character of the same kind—it is broad and low. The second story is decidedly subordinate to the first. The fact that it is exactly half the height of the first story probably has no importance, because there is no common recurring unit to make that fact clear. The position of the second-story win-

Fig. 56. A Colonial house at Redwood City, Cal. The second story not properly subordinated to the first.

dows, each exactly above an opening below, makes for unity. The enlargement of the three central arches emphasizes the entrance, and the two circular medallions beside the central archway serve further to unify the design by making the center emphatic.

In the Colonial house at Redwood City (Fig. 56) the repetition of the central porch in the two wings is pleasing, but repeating the height of the first story in that above is unfortunate and makes a design less beautiful than in Figures 54 and 55, in which a diminishing ratio was used. A redesigning of the second story, omitting the ornament of the central window, a better grouping of all the windows in harmony with those of the wings, and placing the iron railings on the balconies above the outer edges of the columns, would make a much better design.

CONCLUSION

The methods of expression in proportion: the golden sector, a common unit of measure, a diminishing ratio, similar rectangles, and decisive character, are all instruments or means by which relative rank of parts may be expressed, whether that rank in the design sense shall be equality, superiority, or subordination. The word *subordination* indeed expresses the principle of good design which results from difference in sizes of parts. The lesser part may be subordinated by inferior size or inferior position, or by less assertive shape.

Fig. 57. The Baldwin-Lyman house, Salem, Mass., erected in 1818.

Fig. 58. The Walter Hoag house, Burlingame, Cal. Lewis P. Hobart, architect. An example of excellent balance in block organization, use of detail to attain unity of the whole, and in relation of house to yard.

Fig. 59. Sharp angles "hook" the eye.

CHAPTER III.

DETAILS AND TREATMENT OF SURFACES AND EDGES

We have seen that good designs are made of parts of different rank, because of different sizes and positions; an agreeable and forceful design must have clear indication of these parts and of their rank. This indication is made chiefly by block relations of mass, but also by treatment of details such as cornices, belt-courses, door and window casings, chimneys, pilasters, brackets, trellises, waterpipes, and the like. Sometimes these details are used to form the boundaries which set off the parts of a design into primary masses, connecting links, and other parts, but more frequently they form merely the further accents and the decoration and subdivision of surfaces.

The outline diagrams of Plate I indicate the naked masses of a number of buildings; the same buildings appear quite different in the photographic cuts of the book because the details of their embellishment are shown, also because foliage, plants, and terraces make very important additions and relate the buildings to their surroundings. The purely architectural details will now be taken up, and foliage and planting considerations will be left for a later chapter.

Consider the house of Figure 58. It is seen that the line or edge of greatest emphasis is the one formed by the projection of the roof over both gables and along the horizontal eaves. This emphasis is purely for the purpose of beauty. It gives a sense of protection, it is true, but that sense of protection is psychological rather than physical, and hence a matter of artistic or emotional consideration.

The roof of the house, including rafters, boards, and shingles, is probably six to eight inches thick, and the cornice represents that roof projecting, and so represents its importance and defines its boundaries. Likewise the brackets along the cornice, four in each gable, probably give no actual needed support to the roof, but have as their real purpose the further emphasis and embellishment of the cornice line, making it more important and "richer" in interest, and also softening its edge and connection with the vertical wall beneath. Compare with the similar line of Figure 59.

The window groups in the upper parts of the gables are carefully considered; in shape they fit the space as three level, flat-topped windows would not do; four windows in that space would be abominable.

Fig. 60. Faulty gable filling. Compare with Fig. 58.

The small balconies further emphasize these windows and continue the horizontal line of the eaves. These three windows, with their supporting balconies, also form a very important emphasis of the two gables as primary masses, since *three objects, the center one of which is emphasized, have great compelling power in artistic expression.*

Fig. 61. A Colonial house at Geneva, N. Y. Although in the North, this house is "Southern Colonial" in type. The columns are spaced by the "Common Unit" with the central one omitted.

Notice the dormer on the connecting link—its cornice is flat, its windows equal and all flat-topped. In this way the force of the dormer is subordinated in keeping with the proper humble spirit of the link, allowing the gables, as primary masses, to have the glory of angular accent.

The doorway is enriched with much detail and would attract unduly from the gable masses did not the gable masses have the enforced attention which their details of cornice, brackets, windows, and balconies give them.

The house of Figure 59, page 32, is much less pretentious. The gable cornice is emphasized by one wide verge board and a single small piece just under the shingles. The verge board is emphasized at its lower end by being cut in an acute angle which is insistent on calling attention. (An acute angle "hooks" the eye.)

This house is sufficiently clear in its distinction and definition of parts. It has no attraction in details, the gable of the primary mass is awkwardly filled, but although it has no architectural charm, it commits no great blunder.

The Colonial house, Figure 61, is very moderately embellished in all details except that of enormous porch. The eaves are slight in both projection and thickness, but the molding itself we

Fig. 63. Another mansion of "Southern Colonial" type at Geneva, N. Y. The iron balcony above the porch has fortunately been removed since this photograph was taken.

may be sure is delicately beautiful with many members. An evidence of refinement in design is afforded by the corner of the main cornice and its horizontal return which affords a proper transition from the sloping gable to the vertical line of the corner. The three windows give proper gable expression by the accent of the central one.

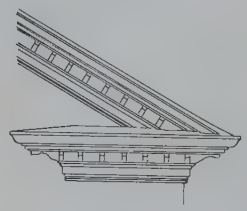


Fig. 62. Cornice detail of Fig. 61. (Drawn from a photograph and partly guess work.)

The spacing of the columns with wide central opening is exquisite, the principle of the common unit with one column being omitted. The lightness of the balustrades in both first- and second-story porches is a mark of good judgment, since the columns should be interfered with as little as possible and should retain the effect of unbroken vertical units. The delicate curve of the column and light capital is a further mark of refinement.

The same refinement appears in Figure 63, although the railing at the top of the porch is awkward, and has been removed since this photograph was taken.

No period of American domestic architecture equals in expressive grandeur these dignified buildings of the Colonial period, with their finely proportioned and simple porches.

Figure 64 is a recent and very free interpretation of the Colonial. The porch base, the columns, and the entablature form in effect a decorative frame, always casting a shadow and giving the house expression. The four central columns with the pediment above jut forward a few inches and so mark this portion as the distinct secondary mass of the house. The central rectangle is almost identical in proportion with the end spaces, the central one lying horizontally, the ends vertically. (The diagonal lines indicate the rectangles referred to.) This relation is called similar and opposed rectangles.

Fig. 65. Diagram of the similar reversed rectangles in the Weir house.

Fig. 64. Residence of Mr. W. B. Weir, Menlo Park, Cal. Dan Trees, architect. A design of great beauty in its setting of large oaks.

The house of Figure 66 is a classic design of refined expression. The quiet dignity arises from the large extent of undisturbed smooth wall and the refined and restrained details. A horizontal belt between stories would injure this design. The emphatic line is the base, a low terrace with a line of color in the brick coping and further emphasized by the formal trees in their blue-green tubs.

Fig. 66. Residence of Mrs. C. E. Hughes, Palo Alto, Cal. John K. Branner, architect. A design which shows very subtle care in the adjustment of design elements to attain a balance of attractions.

The cornice has a modest projection, the entrance porch a moderate size, with the one exuberance of the whole design occurring in the urn forms of its balcony roof. The curved lines which reach up to and include the second-story windows help to mark the central vertical space of the design, and this porch group with the rain leaders on each side ties the two stories together. The whole porch top lifts the center of interest where it belongs, counteracting the attractive force of the lower windows and accented base line.

The design shows a studied balance of visual effect, with the attention dissipated, as by the plain wall, or held strongly, as by the terrace, or less strongly, as by the cornice, at the studied will of the designer.

Three "Dutch" Colonial houses are shown in Figures 42, 43, and 44. In this style the emphatic line is just above the first story, and the wise designer will avoid over-size or over-emphasis of the dormers above. In these designs this subordination is well observed. These houses also have the advantage of uniform treatment in sizes and placing of windows.

The house of Figure 67 is noteworthy in many respects, especially in the harmony obtained by the recurrence of the semi-circular forms in the porch plan, in the large dormer and small dormers, and even the edges of the steps, which are semi-circular and four inches thick. The corners are elaborately treated.

The house of Figure 68 shows a scheme of multiple, opposed, and reducing rectangles which are diagrammed in Figure 69. The portions *a*, *a*, stop *b*, which in turn stops the windows, *c*, *c*, which in turn stop the window bars,

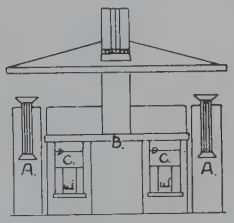


Fig. 69. The design scheme of Fig. 68, showing the multiple, opposed and reducing rectangles.

Fig. 67. Chapter house of the Delta Kappa Epsilon Fraternity at Stanford University, Cal. William P. Knowles, architect. Illustrating harmony resulting from the use of similar recurring forms in many sizes, namely, the semicircles.

Fig. 68. Residence of Mr. H. A. Haehl, Palo Alto, Cal. John Hudson Thomas, architect. An example of "Geometrical" or "Art Nouveau." The slight elevation of ground helps the setting of the house.

d, d, from which hang *e, e.* An example of "art nouveau."

The house of Figure 70 shows beautiful modulation in the moldings bounding the window openings. The treatment of the entrance and the windows above them as a single elaborate panel binds together the two stories above and gives proper emphasis to the center of the formal design. The pointed-topped openings of the wing at left are characteristic of English Tudor style.

The boundary of the central opening of the elliptical porch (Fig. 71) is very beautiful, as indeed is the whole porch; but the roofing of the elliptical bay and the placing of the dormers on the roof are not successful.

Fig. 70. Residence of Mr. W. G. Hitchcock, Burlingame, Cal. Lewis P. Hobart, architect. The moldings and low-angled, straight-lined arches in the left porch characterize the "Tudor" style.

Fig. 71. Residence of Professor Elwood Mead, Chabot Road, Piedmont, Cal. Dormers are too high, and union of elliptical bay and roof is awkward, but the porch is beautiful, and in its curved pediment very happily echoes the dormers.

Fig. 72. Porch of the Mead house. An example of very successful detail.

The beauty in architectural detail of these houses (Figs. 73 and 75) depends upon two slight features—the cap of the wall, with its slight break at the lower end and in the center (Fig. 73), and the chimney, with its two elongated openings. The walls are left plain and not over-troubled with detail (excepting the plants relieved against them).

This group of three houses, called San Benito Court, was built and designed to show that it is possible to create a sense of spaciousness in garden and surroundings even when three houses are built on a total space of 160 feet.

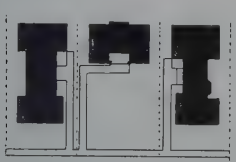


Fig. 74. Block plan of Figure 73. Note that even the two houses at the left have separate entrance walks—a recognition of both child and adult psychology of ownership.

Good architecture in massing, treatment of detail, and planting, has conspired to produce an extraordinarily successful group of buildings.

The house of Figure 76 shows the detail of what may be termed a "Craftsman" house, also called "Bungalow" and "Mission." The characteristic of this style is the use of rather heavy, square-edged timbers for details of elaboration. The square-edged verge boards with curved lower ends, the brackets, and the flower box under the dormer window are characteristic. As far as pleasure in details themselves is concerned, there is little to please in the "Craftsman" style; there is no pretense at refinement in them; they are frequently left unplaned and showing the marks of the saw, but these details may be placed effectively to produce emphasis through weight and shadow where emphasis is needed to make clear the main divisions of the design and to soften edges as transition elements.

This design has unity and simplicity in its entire effect and also a sheltered appearance under its broad, low roof—qualities which many houses of greater cost do not attain.

The bungalow, Figure 77, has more refinement in small matters than is usual, while it still keeps the "Craftsman" form of piquant coziness. The slight upward curve at the angle of the porch hood, and the details about the rafter ends, the "decisive character" in the broad, low proportions and the recurring horizontal made by the accented window sills, are elements which conspire to give the design individuality.

The house of Figure 78, in its three dormers, is restful. A skilled designer knows when it is best to maintain even sizes in a series of details like these

Fig. 73. A view of San Benito Court, St. Francis Wood, San Francisco, Cal. Louis Christian Mullgardt, architect of the group plan, the general architectural style and the house at the right. Henry H. Gutterson, architect for the completion of the group. (By courtesy of the Mason-McDuffie Realty Company.)

Fig. 75. Front view of San Benito Court.

Fig. 76. A "Craftsman" bungalow at Redwood City, Cal. Characteristic of the style in its use of square-edged timber for ornament.

Fig. 77. A "Craftsman" bungalow at Easton, Cal. More elaborated in attention to small details of construction than is usual. Its setting on a street with triple rows of large trees on each side is very pleasant.

three dormers and when it is better to emphasize the central one by increased size. This house is too small to permit the emphasis of the central detail.

The house of Figure 79 is a simple, well-proportioned house with parts clearly marked, having one refined element—the tapering buttresses. Also, the gable has proper gable expression, as in the house of Figure 58, page 32.

The house of Figures 80 and 81 shows Craftsman details skillfully used. The verge boards are heavy and doubled, but not too heavy for this particular house, which is quite large. The heavy window casings and flower boxes of 2-inch plank are also in keeping with the spirit of the design.

Figures 27 and 28, page 18, show the

Fig. 78. A bungalow on which three dormers are well subordinated and contained within the boundaries of the main roof. San Mateo, Cal.

slender details of the so-called Colonial Revival of about 1890 to 1910. It was a great advance upon the horrible "Eastlake" or "Queen Anne" which preceded it. (This so-called Queen Anne had nothing to do with English furniture of the same name.)

Figures 37 and 38, pages 21, 22, are further examples of the Craftsman or Bungalow style. The low-pitched roofs with wide eaves, the rafter ends projecting conspicuously, the pattern sawed on the ends of the pergola rails, the texture of brick and stone in the pergola pillars—these are all characteristics of the style and are all effectively used in this house. But granting the charm,

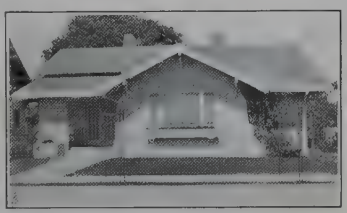


Fig. 79. A plaster bungalow with "T" plan and sloping buttresses. San Jose, Cal. Andrew P. Hill, Jr., architect.

the coziness, and the expression of geniality, one must still admit that the style altogether has a slight and temporary character.

SOME VERY BAD DESIGNS

A few designs which follow are discussed merely that the principles of taste regulating good designs may be better understood.

The houses of Figure 40, page 23, were mentioned in Chapter I as failing in clearness of block organization, but the details are also unthinkingly used. Looking at the main gable of the left house, we see that the ceiling of the second story extends up into the roof,

Fig. 80. Residence of Dr. E. P. Cubberley, Stanford University, Cal. A large house with heavy "Craftsman" details. Dr. Cubberley, designer.

but a horizontal cornice return, which should only be used at a ceiling level, is used in the middle of the story. The windows had to be put in by a surgical operation in the belt-course instead of growing naturally in an otherwise unoccupied space. (Figure 58, page 32, shows the cornice treatment suitable for this half-story gable.) The emphatic line should be the roof edge clear to the peak of the gable, but this line has been partly nullified by closing in the apex, while the most emphasized line of the front is one which deserves no special emphasis—the line separating the first and second stories. This is made emphatic by the heavy dentils. The brackets supporting this overhang properly have a wide base and taper to a narrower end, but then a superfluous turnip-shaped "drop" is added as an anticlimax.

The basement siding is of boards, above shingles are used, and the gable glories in "fish-scale" shingles in one part and in tile-like squares in the peak. This poor house has to carry all the varieties of wood treatment that its designer could obtain.

The porch balusters have a meaningless intricacy where the simple continuity of uniform vertical spindles would have been restful.

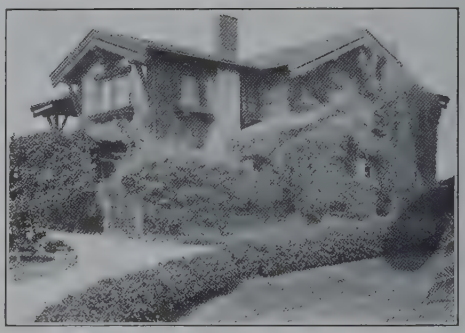


Fig. 81. The Cubberley house; corner view.

The motive underlying all of this meaningless intricacy, from the scroll-sawed posts at the bottom of the steps to the gable finial, was the desire to turn wood-working machinery—turning lathes, scroll-saws, molding "stickers," and the like—to some architectural advantage. These machines during 1890 to 1900 had been greatly improved in capacity for performing their particular kind of work rapidly, and their products affected architects and carpenters like a plague, swarming over and encrusting designs as unrelated, unassimilated, and pestilent vermin.

Compare the porch of Figure 72, page 39, with Figure 40, page 23. Both are made by the aid of labor-saving machinery, but one was made by a designer of taste and careful thought, the other by a terrible bungler, active but thoughtless. We can imagine his kind speaking contemptuously of the utility of thought in design, saying, "I never studied architecture, but I know how to make a house look tasty and practical; lots of architects don't know how to do anything except to waste your money." "Practical" is a much-abused word, and misused in this connection to signify short-sighted ignorance. The elaboration of

Fig. 82. A house of freaky details in plaster and wood. An inconsistent use of materials.

these monstrosities in their ugliness cost three times as much as the delicate elaboration of the porch of Figure 72, or the spacing of Figure 63, page 35, or the plain Miller house, Deerfield (Fig. 99, p. 54).

The proper use of details is to emphasize and beautify the main divisions of a house.

Figure 82 illustrates some of the diseases and mistakes of the modern use of plaster as a surface covering. In the porch details meaningless forms derived from wooden construction are surmounted with a square masonry-like block, a most astounding procedure. The use of plaster on one side of the porch railing and wood on an adjoining side violates consistency. The designer of this house was using plaster as a thin covering and consistently in places; in other places he was thinking of his masses as of solid masonry. In no case

Fig. 83. A shingle bungalow, pleasing on the whole, but with over-emphatic chimney and porch pillars.

Fig. 84. A plaster bungalow, also pleasing, but with over-emphatic sloping chimney and porch pillars.

did he show any skill in space division or in delicacy of proportion. Lack of intelligence is the trouble—the crime of crimes and the breeder of all vulgarity!

The houses of Figures 83 and 84 are both rather pleasing, but show the fault of exaggeration in "features"; of too large eaves, chimneys, and porch pillars, making them so emphatic that the impression is of these rather than of the houses. The fad of these pyramidal masses will soon pass, but the results will, alas, remain for a long time. What is a "fad," indeed, but a detail of such exaggeration and inappropriateness that it is striking and calls attention unduly? Hence it must soon pass, because it is not properly incorporated with that of which it is a part.

Fig. 85. A house with an exaggerated porch and a boastful use of brick. The brackets and vertical lines in the gable are disturbing.

Fig. 87. A large plaster house of brag and errors. Its block organization is muddled; the buttresses of the steps are uncertain in design purpose.

Fig. 88. An unpretentious bungalow with excellent chimney and entrance. Mrs. Frances Rand Smith, designer and owner.

The house of Figure 85 illustrates another common fault of the present day — the exaggerated porch, making it more emphatic in expression than the main mass of the house; like a dolphin, all mouth. The slight accent of brick, if used at all, should have been as Fig. 86.

Fig. 86. A correction in one detail of Fig. 85

The house of Figure 87 is full of brag. It lacks dignity in its main divisions, and the secondary masses are not subordinated. Nothing so disturbs repose as concealing a corner of the main block by a large secondary mass. The belt-courses are ugly and clumsy. The buttresses of the steps are jerky in their uneven and unrelated portions, showing uncertainty in the designer's mind. Plaster houses, even more than shingle ones, need refined moldings and edge markings, or none at all, for they may have dignity when treated merely as large, plain surfaces. The houses on page 40 are good examples of plaster used as mere surface covering.

Fig. 89. Residence of Mrs. Mary Quinlan, San Jose, Cal. Andrew P. Hill, Jr., architect. Successful plaster treatment. The terraced yard results because this tract was properly prepared for building upon by lowering the streets and raising the lot level.

The house of Figure 88 is a very modest, unpretentious house with two excellent details—the chimney, with its simple recessed panel, and the entrance hood and trellis, which give a pleasing distinction. Vines and planting are a great addition of textures to a plastered house.

Fig. 90. A cottage with a shingle roof rolled into thatch form. Bernard R. Maybeck, architect. San Mateo Park, Cal.

The house of Figure 89 is an example of excellent detail or perhaps restraint in use of detail: the windows are uniform in sash size; the rain leaders are used as divisional lines; the details of terrace porch and flower boxes with the brick coping, and the planting of shrubs give a fine "occult" balanced design. The plain plaster surface forms an unbroken field in which the window spacing is effective and against which the plants are well silhouetted. The tract which contains this house and the house of Figure 44, page 27, was originally very flat. In preparing the field for residence use, the streets were lowered and the surplus earth was used to raise the lot level. Hence we have terraced lots with fine effect, and also lots which are dry, the streets properly carrying away all surplus water.

The house of Figure 90 shows shingles used to roll over the edge of the gable cornice line with the thickening

Fig. 91. Residence of Dr. F. M. McFarland, Stanford University, Cal. Arthur B. Clark, architect.

Fig. 92. The McFarland residence from the driveway entrance. Note effect in composition of coalescing tree masses.

Fig. 93. A house with actual thatch, apparently of rushes, Hollywood, Cal.

effect of thatch. The dormer also has the masses and simplicity of straw-thatched English dormers with trimly sheared edges. This has the advantage of giving the roof weight and importance, and at the same time of keeping rounded and softened edges. The artistic legitimacy of thus imitating the forms of one material by another comes to mind. Imitation is not in itself a desirable thing, but when the desire is not to deceive one into thinking that the thatch is actual, but rather to use shingles in attaining the type of beauty which thatch may have, it would seem that we may be very forgiving, especially if the result is as charming as is here obtained. The wood details are also skillfully used.

The house of Figures 91 and 92 also has thickened gable rolls of thatch-like structure, and notable details of columns and caps for the openings in the two low and symmetrical gables.

Figure 93 shows a house in Hollywood, Cal., with actual thatch.

The house of Figure 94 has splendid

Fig. 94. Residence of Mr. Edwin D. Thomas, San Jose, Cal. Italian in style. Fine dignity in the expression of heavy wall with its large, untroubled surface in which the openings are not over large. Pleasing occult balance is attained between the right-hand terrace and the entrance with its steps and path sweeping toward the center.

Fig. 94a and b. Residence of Mr. Herbert C. Hoover, Stanford University, Cal. Arthur B. Clark, architect. (But Mrs. Lou Henry Hoover contributed the best ideas, while Charles T. Davis and Birge M. Clark carried them out.) Unlike many houses of plastered surface, this house is of solid concrete and brick construction. Its roof areas are flat and made for living upon, like terraced porches, and approachable by outside stairways. These terraces command a wide view of the Santa Clara Valley and one arm of San Francisco Bay. Prototypes for its style are found in part in the warm Mediterranean countries, and in part in the plain country houses found in Italy and the southwestern United States. It is but partially finished at this writing.

Fig. 95. Country residence of Mr. R. M. Fleishacker, Woodside, Cal. Greene & Greene, architects. The shingles of the roof roll in thatch-like forms from one irregular surface to another and soften all angles.

dignity and restraint: first, the dignity of the plain wall surface, with its divisions into two parts, a greater below and a lesser, the upper portion, each cut by the large central opening, with its lower accent of balcony; second, the occult balance made by the simple doorway at the left, flanked by the fine lamp bracket; third, the terrace porch extending to the right. The tall trees at the left are also an important part of the design. This is real architecture, which does not have slight and temporary character.

Figure 95 shows another California house with shingles used in thatch-like rolls from surface to surface.

CHAPTER IV.

STYLES IN DOMESTIC ARCHITECTURE IN THE UNITED STATES

"Style" means an established mode of building—as the style of the "Colonial," "The Shingle Bungalow," or "The American Farm House." Each style has many subdivisions and local modifications, but each style and phase of a style represents fairly uniform customs of building and a resulting uniformity of product. The word "style" used in this connection to signify the established mode, refers not merely to the outward marks of identification, as cubical main mass, or wide low roof, or delicate moldings, or whatever characteristics they may be by which we recognize and name a style, but the word also refers to the inward emotional mood or temper of the building, as dignified, austere, modest, retiring, cozy, or nestling in its general aspect, or as refined, delicate, polished, rugged, natural, rough, picturesque, rustic and studied, or careless and indiscriminate in its treatment and use of materials. Thus the word "style" denotes both the outward form and the inward spiritual emotion of a building as mutually interacting and interdependent.

But the term "style" is often used with a different meaning still, as synonymous with the word character or individuality, and when so used—when a building is said to have "style"—it indicates the possession of positive, desirable distinction in such qualities as elegance, dignity, or homelikeness—the word signifying qualities of marked excellence.

One can not go far in the appreciation of architecture without a study of styles. Yet this study alone is not sufficient. A study of all the houses of the country, or of any one city or part of a city, will quickly drive one to the conclusion that success in designing a house depends not alone upon any occult charm within the style itself, but upon the taste and skill of the individual designer—the subtlety and art with which he uses the forms and methods of the style in which he works to produce the elusive quality called artistic charm.

When habits in building have been good, many inartistic builders have doubtless, at times, by an indiscriminate and unconscious following of prevailing customs and proportions, attained results which are good compared with architecture of other times. But the reverse is more often the case, as many houses of poor, unattractive design exist in all styles and prove that being in a given style is not in itself sufficient to ensure any marked beauty of result. Indeed the buildings of complete artistic charm in any locality or style are very rare. We can all recall residence tracts of fresh, clean-looking houses and yards which seem in general impression to be full of fine houses, but close study will show that a very few only are of really excellent design. It is only in beautiful arrangement of parts, in most accurately adjusted proportions, with accent of ornament in the proper place, that a beautiful design can result, no matter

what the style. In other words, beauty results by composition and maturity of design.

Another generalization regarding merit in house-building which partially atones for the rarity of buildings which approach perfection is that we may obtain great pleasure from many buildings which are perfect in some respects, although imperfect in others.

Ruskin summed up the cardinal virtues of architecture as he understood them in his essay on "The Seven Lamps"—the "lamp of truth," "lamp of beauty," "lamp of sacrifice," "lamp of strength," and so on. If we accept his summarization or any similar classification of architectural virtues as complete, and try to apply the principles so determined as tests of any particular design, we will find that much admirable architecture is perfection in some respect, or, as Ruskin would say, in "one lamp" only, and wrong in others. Architecture is the resultant of complex and numerous influences, which bring it about and shape its forms. The architect may be either consciously or unconsciously sensitive to some of these forces, and unaffected by others.

Desirable as it is to produce perfection of architecture in all respects and, also, desirable as it is to recognize defects as defects, it would be foolish to withhold admiration for one kind of merit because a building lacks some other merit or virtue, and, conversely, bad to claim all merits for architecture which really has but few.

A building may be excellent in its main distribution of parts, its definition of main and secondary masses, and yet its materials may be falsely indicated in construction. It may look like plastered stone and actually be lath and plaster on a stud frame. Such indeed are many recent houses. Or it may have delicate and elegant details of porch and window and admirable organization, and yet have unpleasing cubical masses. Such are many bleak and forbidding Colonial mansions. Again, wood may be used with entirely consistent logic of structural advantage, its proper nature of strength across grain, and splitableness longitudinally being considerately dealt with in construction, and yet the resulting structure may lack grace and rhythm in design, or not be appropriate in many situations. Such is much so-called "mission" furniture. Such are many plain barns and many of the cruder bungalows. This virtue of right use of material is not alone enough to justify these products as good architecture. Again, a house in itself may be excellent, but may have poor surroundings of foliage or approaching drives and walks. Another house may be very commonplace in itself but be so well placed in its yard surroundings that the home is very pleasant. A house may be convenient but ugly, and vice-versa.

The lesson is that intelligent appreciation of architecture will recognize each merit for itself and for itself alone, and, though it may be wise to cultivate charitable tolerance toward defects in examples in which the virtues excel the shortcomings, this tolerance should never become admiration nor encourage a repetition of defects.

Nor should one be narrow in his likes. We may admire the solidity and permanence of construction resulting from the exclusive use of stone, as in mausoleums and a very few larger modern buildings like the New York and Boston Public Libraries or the Scottish Rite Temple of

Washington. But there are many fine buildings which are frankly composite in materials, in which the covering and frame are distinct and the structural members are concealed, as our flesh conceals our bones, and as our clothing conceals our flesh. Such structures lack the virtue of frank expression in one material, but they still have many artistic possibilities, as witness the Colonial houses in which stone prototypes are expressed in wood, or the Venetian palaces which have a marble veneer on a core of brick masonry.

The forces which bring about architecture are several. One is architectural tradition, the images of other buildings which exist in the mind of the designer, as the English architecture which affected the first architecture in New England. Another force is the material at hand, as wood, stone, brick, concrete, adobe. (Along the railroad yards of the southwestern United States one sees a very elemental style of building developed from the use of discarded railroad ties, mud, and whitewash.) The Pueblo architecture of New Mexico and Arizona developed from use of overhanging cliffs, closed in by crude walls of loose stones and pieced out wtih mud and wooden poles. The early settlers of the East went into the forests with axes and made long cabins. Another force is the social and family needs and customs; the degree of dignity of life and hence its expression in the house, as expressed in the Colonial mansion, is quite different from that of the early log cabin, the sod house of the Mississippi Plains, or the miner's cabin of the gold-digging days of California, or even the bungalow or rambling house of today. The first reflects a ripened civilization with a good margin of scholarly leisure, the second a hard-pressed life in which the bare necessities of existence are all-absorbing, and the last a care-free existence somewhere between the two in culture.

Passing from generalities to the specific styles which one finds in the United States, and which are now living forces in American architecture, one finds the following:

1. Colonial: Colonial influence still predominates in New England and the South, and is found in some degree all over the United States.

2. Neo-Grec or Classic Revival: This style supplanted the preceding and is often wrongly confused with it. The Greek Temple architecture was its inspiration.

3. Northern Tradition (steep roof): In Pennsylvania and all through the Northern States one finds a style which is variously called "Northern Tradition," "American Farm House," "English Shingle," "English Plaster," "English Cottage." These names each indicate different phases of somewhat parallel motives. The side walls of such house are sometimes of stone, again of wood, but usually low rather than high; the roof is always gabled and not less than one-third pitch—frequently steeper.

4. California Bungalow: The California Bungalow has one story, or story and a half, with a low roof, its elements being derived from Swiss, Craftsman, and Japanese characteristics. The Japanese uses wood as wood in a consistent way, his details being much more refined and elaborated, with more modulating hand-tool manipulation and less buzz-saw expression than is found in the "Craftsman."

5. Western Plains: Chicago archi-

tects developed a style called "Chicago School" or "Western Plains," which is often found in the Far West also. This has flat roofs and emphatic horizontal lines, and straight-line decorations predominate.

6. Mission or Spanish Renaissance: In California there is frequently found a masonry architecture, genuine or imitation, partaking of the style of the Missions and Spanish Renaissance generally. This is distinct from the English Tudor and Italian Renaissance, but the three overlap and have many very close resemblances. The Mission as applied to wooden bungalows is often more properly called "Craftsman," the true Mission being a masonry architecture.

7. Italian Influence: This is a style found everywhere, occurring in stone, brick, or wood. It differs from Colonial or Mission in having plainer wall surfaces. It may be slightly asymmetrical. Its columns are less lavish, and, if used at all, support walls above round arches rather than merely porch roofs. It has fuller, more rotund moldings than the Colonial. Its simpler examples differ from English plaster chiefly in that Renaissance detail is used somewhere. The style admits very picturesque adaptations to uneven building sites, and unsurpassed richness in treatment of grounds.

8. Half-Timber or Elizabethan: This style is the Northern Tradition in form. Its characteristic is a surface treatment of plaster alternating with strips of wood. The house walls of the genuine Half-Timber architecture were made of a heavy frame of beams with the interstices filled in with solid masonry.

9. Pueblo: The Pueblo was developed in the Southwest as a modern interpretation of the cliff dwellings.

A More Detailed Consideration of the Principal Styles

COLONIAL

The so-called "Colonial" style is an adaptation in a new country of the English Georgian. The English Georgian in turn was a Renaissance derived through France from Italy. It developed in England as a domestic architecture. The Renaissance of Italy—revival or rebirth—was characterized by exuberant and even extravagant use of old Greek and Roman forms applied in lavish manner as enrichment and not always with deliberate logic of structure. In America the details of cornice, mantels and casings were adapted to expression in wood with a lightness, delicacy, and restraint which gives to "Colonial" its greatest charm and individuality. A style which has so persisted and which today in many parts of this rapidly changing country is the prevalent style of new buildings, for both civic and private use, must have within itself very fundamental elements to have survived. If the question is raised as to whether it is custom or merit which enables a style to endure, the an-

Fig. 96. The Jumel mansion, New York City. Built in about 1765 and used during one winter as army headquarters by George Washington. "Southern Colonial" type.

swer must be both, but it should be the aim of any discriminating study of art to discover the elements of intrinsic merit.

The Southern type of Colonial is well represented by four examples: "Homewood," built at Baltimore in 1809 (Fig. 24, p. 17), two houses at Geneva (Figs. 61, 63, pp. 34, 35), and the Jumel mansion in New York City (Fig. 96). The three last named are of Southern type, although found in New York. "Homewood" has been discussed in its principles of design in each of the preceding chapters. It is interesting to know that its central mass has been exactly reproduced in a house built in Salem, Mass., since 1900. The plan of the original "Homewood" follows:

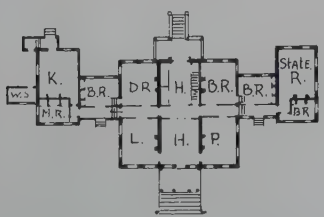


Fig. 97. Plan of Homewood. (Exterior, Fig. 24.)

This plan is typical of the South in its shape. Frequently one wing was used by slaves. A full description of "Homewood" is given in the *Architectural Record,* May and June, 1917. Similar plans are found in the Brice house, the Chase house, and the Harwood house, all of Annapolis, Md.

The entrance of the Nathan Robinson house, Salem, Mass. (Fig. 98), is typical of the later wooden Colonial of New England. The elaborate fence posts and details of the porch indicate a culture greater than that of our present time.

Fig. 98. Entrance, porch, and fence posts of the Nathan Robinson house, Salem, Mass. Built in 1804.

THE COUNTRY HOUSE

To become conscious of his appreciation of the farm houses of the Northeastern quarter of the United States, one must first know them intimately and then for a long time be removed from them by residence in a closely built city or elsewhere. Such a person can close his eyes and picture a group of farm buildings containing a white house with a main mass and an extension with a porch on one side, and woodshed and a wooden box-pump over a stone slab, and a group of red barns of many sizes, some larger than the house; a corn crib, a chopping block near some dead tree branches, plentiful elm trees in the tilled fields, and a small orchard. Along the country road as it rises and falls are

Fig. 99. The Miller house, Deerfield, Mass. A house with no conscious architectural attempt, but expressing perfectly in its refined and stabilized procedure in building the solidarity of its self-respecting occupants. To produce the same degree of genuineness in present-day houses requires the relentless destruction of all ornament and "features" which are used as temporary novelties, like faddish hat trimmings; and a generally common appreciation of design principles, in which details are permissible only when contributing to the unity of the design as a whole.

other houses, some above the road, some below it. The ground containing house, road, and barns is sometimes level, but very often there is more or less slope. One who knew this country can recall many differing localities—now a valley road, now a ridge road, or a winding one, with dozens of houses along the way. Some are unpainted, many are painted white, some are stately and look like homesteads worthy the veneration of generations, while others are crude and unassimilated in the bleak landscape.

Figure 99 is the Miller house at Deerfield, Mass., and is probably 150 years old. It has dignity in the size given by its main mass of three stories. The open porch and prolonged additions give it length of horizontal line to cling to the level ground. It is designed mainly with symmetry about its axial planes. The front door emphasizes the main axis by its one-story porch. The only enrichment of detail is about the door trim and the very modest projection of eaves and markings of corners by vertical boards. The dark opening behind the latticed well is the center of balance and the center of activity also. The

Fig. 100. The Joseph Stebbins house, Deerfield, Mass.

Fig. 101. The Cockrane house, Deerfield, Mass. A farm house with long extensions, typical of New England, and an eloquent comment on her rigorous climate.

skyline contour is softened by the gambrel type of roof.

The Stebbins house (Fig. 100) is quite similar to the Miller house of Figure 99, except that we are not looking at the working side, and the corners are marked by boards which unconsciously, no doubt, were derived from stone "quoins" (a violation of Ruskin's "lamp of truth"). The door cap is not the traditional Colonial but rather the "Deerfield" variety of it. The monument in the yard contains this inscription:

> Home of Joseph Stebbins, born 1748, died 1816. A lover of liberty and a servant of his country. Lieutenant of Minute Men, who marched on the Lexington Alarm, Captain of the Battle of Bunker Hill, fought at Stillwater and Bemis Heights. He led a force of volunteers across the Hudson near Fort Miller and captured an outpost in the rear of Burgoyne.
>
> Commissioned Colonel of Militia 1788. His descendants honor his memory and cherish his old home.

Figures 101 and 102 are on the same Deerfield street. No. 101 harmonizes with the ground by its length. No. 102, although in sad dilapidation, is more pleasing than many in spacing. The central axis and grouping of the two windows on either side, by their grouping about three axes, make better design than that obtained by the uniformity of spacing often found between the five upper windows in similar designs.

Fig. 103. The design analysis of the above house showing the three distinct vertical axes.

Deerfield houses are distributed on a street for a distance of about three quarters of a mile. A small irregular "square" or "green" occurs at one point, with a short branch street running from it, and not far away another branch street comes in from the railway station. It exists today much as it has for one hundred and fifty years, only its enormous elms have almost outgrown the street. Some accident of location has prevented the changes which, to a much greater extent, have altered most villages of similar age. But its present charm is due to a very important fact, which all people who build in any age or country would do well to ponder, namely: its people had the dignity of self-respect and built in such a way as to express that dignity in their houses.

The house at Caywood, New York (Fig. 104), is a very typical house which many would call Colonial, but which shows rather the influence of Greek Revival. The essentials are the main mass, with defined corners and with heavier molded eaves than in the earlier

Fig. 102. A Deerfield house, dilapidated, but with excellent design in its proportions and grouping of openings.

Fig. 104. A farm house at Caywood, N. Y. "Greek Revival" in style, and with delicate adjustment of proportions which results in artistic charm. The secondary mass echoes the primary in the proportions of its block form.

Colonial. The secondary mass with its porch of heavy cornice and fluted Doric columns is quite characteristic of "Neo-Grec." The main path leads to what is probably a living-room porch, the mere existence of which indicates a freer family life than that for which the Deerfield houses were built. Traditionally, in houses of this type, the entrance in the main mass is used for state occasions, as weddings and funerals, only, and we will see that, in the evolution of this type of house into its modern form of suburban residence, the living room is moved into the main mass, the "front" door becomes the family entrance, and the porch is still an out-door extension of the living room, connected directly to it but not made the main avenue of entrance to the house.

To analyze the art of this house, we find three distinct parts: a primary mass, a secondary mass subordinated by smaller size and by its leaning against the main mass, also another secondary mass subordinated by lower eaves still and attached to the first secondary. This orderly progression in subordination of three main blocks and the similar subordination of the second story, which gives a low expression and unity, and the well-marked details make up the characteristics of the style. The grouping of the front is pleasing, with five openings arranged on a central axis and two side groups. The parallelism of the axes of the first and second blocks makes this more pleasing as a whole, more a unit than many similar houses. The secondary block is a small replica in proportions of the primary block.

The New Haven house (Fig. 105) is a modern edition of the Stebbins house (Fig. 100), but the windows of the secondary mass have become French or Italian in character. It also indicates the transition of the Caywood house (Fig. 104) into modern times.

Fig. 105. A house at New Haven, Conn., with both "Colonial" and French characteristics. This house clearly shows descent from the houses of Figures 99, 100, 101, and 104.

Fig. 106. A "Dutch Colonial" house at Kew Gardens, Long Island. Walter McQuade, architect. Residence of Mr. Wm. F. Eissing.

DUTCH COLONIAL

The Dutch Colonial is found in many places, as in a modest form at Kew Garden, Long Island (Fig. 106). Humble modesty and bright cheerfulness are its charms. The intimate quality is given by absence of steps and close proximity to the ground. The unity is obtained by the emphasis of one line—the eaves. The whites of vertical walls and the dark accents of windows in them make a pyramid in design (Fig. 107). The three angles of roof slope—low, steep, and again low—are characteristic of the style. This form of roof was developed by the Dutch settlers of Colonial times, but has no prototype in Holland.

Fig. 107. The design or "spotting" of the windows in the preceding.

Fig. 109. A modern house in New Haven, Conn., with the three slopes of roof characteristic of the "Early Dutch Colonial," but with a much wider plan.

Another Dutch Colonial, in Baltimore (Fig. 108), has a pyramid sky line which is one of its charms. A New Haven house (Fig. 109), in the abrupt break of its roof into three slopes with the lower apron, is more characteristically Dutch in style than the two just mentioned.

NORTHERN TRADITION

The gabled roof of decided slope, a roof which will shed snow, has already been mentioned as the most prominent characteristic of Northern Tradition.

Fig. 108. A "Dutch Colonial" house in Baltimore, Md.

Fig. 110. A rough-hewn stone house type of Pennsylvania.

Fig. 111. An English farm house type at Forest Hill Gardens, N. Y. House of Mr. Boardman Robinson. H. T. Lindeberg, architect. A house in which the small details, like windows, eaves break, etc., seem to have been placed accidentally, but really have been placed with most rigid care to produce the excellently balanced design.

Fig. 114. An English Plaster type, with "L" plan, Claremont Court, Berkeley, Cal. John Hudson Thomas, architect.

Fig. 112. An "English Cottage" type at Berkeley, Cal. Residence of Mr. C. E. Fleager. John Hudson Thomas, architect. Note the typical pyramidal skyline.

Fig. 115. An "English Cottage" type, Berkeley, Cal. Residence of Mr. L. L. Hotchkiss. Stafford Jory, architect. (Floor plan, Plate II, no. 109. Interior view, Fig. 163.)

Fig. 113. An "English Plaster" type, Claremont Court, Berkeley, Cal.

Fig. 116. Another "English Plaster" type, Claremont Court, Berkeley, Cal. Benjamin E. McDougall, architect.

Fig. 117. A court of "Japanesque" houses at Hollywood, Cal.

Figure 110 is a typical example of this style in Pennsylvania, where the use of rough-hewn stone is frequent.

Figure 111, by Lindeburg, at Forest Hills Gardens, Long Island, is very typical of the English plaster house in its informal adaptation to family needs and circumstances; the gable end with uneven lengths of sloping eaves; the chimney out of center and irregularly splayed but still balanced; the deeply recessed door opening holding its place as the center of the design, and the wall and service gate at the extreme left, are all characteristic of the style. None but a skilled designer could assemble these elements into such a well-balanced design as this modest house attains.

Figures 112, 113, 114, 115, and 116 are all typically English plaster in style. The gable cornices are generally very narrow. In three of the houses certain long sloping roof lines are brought well down toward the ground. Figure 115 has a green balcony with heavy turnings—Italian detail perhaps—and this green enhanced by the pink hollyhocks gives a very lasting impression of cheerful freshness. Figure 113 has Colonial details of porch. It recalls about equally American Farmhouse and English Plaster, in style.

CALIFORNIA BUNGALOW

The California Bungalow is an outgrowth of several influences—the abundance of timber of great length and perfection; the Japanese influence derived from tea houses in this country, and photographs and travel in Japan; to an extent, the low adobe dwellings of the Spanish days; and the movement of 1900 to 1915 called "Craftsman." Not all of these influences are seen in the same building. Many houses in the previous pages, as Figure 26, page 18, and Figure 45, page 27, Redwood Inn, Figures 37 and 38, pages 21, 22, Figures 77 and 78, page 41, and Figure 83, page 43, are California Bungalow types. The house on pages 21 and 22 is two-story, but is still the type. Figure 89, page 44, Figures 130 and 131, pages 62, 63, partake of the true Mission Bungalow type, while Figures 117 and 118 show the Japanesque, and Figure 119 shows Swiss details adapted to the style. The details of this style are discussed on page 39.

WESTERN PLAINS

The Western Plains type is represented by Figure 123. In its rectangular

Fig. 118. Entrance to "Japanesque" home, Los Angeles, Cal.

Fig. 119. A house with Swiss details, Berkeley, Cal. The broad, flat roof and the notched boards of the balconies are characteristic of the Swiss style.

Fig. 120. A Spanish "Renaissance" house, Los Angeles, Cal. The extensive plain wall surfaces, not overtroubled with openings, and with the few ornamented parts treated with full, voluptuous curves and carvings, are characteristic of this style, which is used increasingly in California.

emphasis one finds the spirit called "Art Nouveau." The same "Art Nouveau" has affected the detail of Figures 31 and 33, page 20, and 68, page 38. The Italian influence is represented by the Cooper house (Fig. 121), also by the Los Angeles house (Fig. 122), by the New Haven house (Fig. 124), the Thomas house (Fig. 94, page 46), and even by the modest house of Figure 54, page 29. The characteristics of the Italian style are mentioned on page 52.

NEW GREEK OR GREEK REVIVAL

The New Greek or Greek Revival supplanted Colonial about 1840. The Hill house of New Haven (Fig. 125) is a fine example of this very austere and dignified type, as is also the Geneva house (Fig. 126). A comparison of these two houses with Colonial houses of Figures 61 and 63, pages 34, 35, shows the Greek Revival to be much heavier in its details. The Caywood house (Fig. 104, p. 56) also shows

Fig. 121. An Italian type, the Oscar Cooper house, Burlingame, Cal. Geo. H. Howard, architect. The setting in tall eucalypti is important in the success of the design.

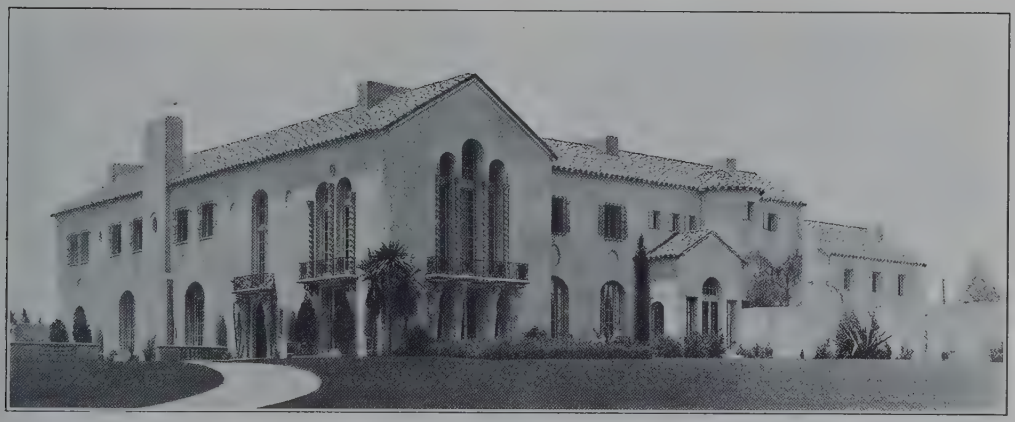


Fig. 122. A house in Fremont Park, Los Angeles, Cal. An Italian type in large enclosed grounds. This illustrates the freedom of adaptation in picturesque irregularity of block distribution possible to even this classic style.

Fig. 123. A "Western Plains" type. Residence of Mr. J. L. Jones, San Jose, Cal. (Floor plan, Plate II, No. 104.) The type is often identified with the architect, "Frank Lloyd Wright."

Fig. 125. The Hill house, New Haven, Conn. "Greek Revival" of 1840.

Fig. 124. A house in New Haven, Conn., with Italian or French characteristics.

Fig. 126. A "Greek Revival" house, in Geneva, N. Y.

Fig. 127. A "Modern Colonial" house in New Haven, Conn. Built about 1906. Residence of Professor Williston Walker.

Fig. 128. A concrete house in Berkeley, Cal., with refined detail in the corners.

Fig. 129. A recent adaptation of "Spanish Domestic Mission" or "Italian," with large, untroubled wall surfaces. George W. Smith, architect and owner, Santa Barbara, Cal.

Fig. 130. The garden elevation of the preceding house. The style affords a very comfortable adaptability to domestic seclusion.

Fig. 131. A recent use of the "Mission" style at Carmel, Cal. Many details of this house are French or Italian, in style.

Greek characteristics, although many people would mistakenly call it pure Colonial.

The Walker house, New Haven (Fig. 127), is a modern house, built about 1906, with Colonial characteristics.

HALF-TIMBER OR ELIZABETHAN

The Half-Timber type, also called Elizabethan, is represented by the Murphy house (Fig. 39, p. 22).

TUDOR

The Tudor, a transition from English Gothic to Renaissance, is represented by Figure 70, page 38. The window caps of the wing at the left are characteristically Tudor.

PUEBLO

The Pueblo, or Cliff House, of Arizona, is represented by Figures 34, 35, and 36, page 21. This style is sometimes used for city flats on sloping hillsides and belongs distinctly to the Southwest. Figure 128 is not Pueblo, although it has simplicity of concrete treatment and absence of sloping roof. The house of plain masonry treatment, which modern use of concrete has brought into vogue, finds its prototype in the plastered stone buildings of France and Italy, and even in the Moslem lands.

MISSION

Figure 129 shows an example of true Spanish Mission, or Italian, which with rare skill has retained the essence of the style with its plain, untroubled wall surfaces, and has yet adapted it to modern needs. The garden view (Fig. 130) shows how light is admitted to the rooms on the sunny side of the house.

CHAPTER V.

FLOOR PLANS

The word "plans" is often used not as signifying the horizontal projection of the house, but as if it included the elevations, sections, perspectives, and detailed drawings of any kind which are required to properly describe the shape and disposition of a house. This rather careless use of the term has partial justification in the fact that the floor plan is the most comprehensive. It, more than any other of the drawings, expresses or implies the disposition and location and space dimensions of all other parts. The experienced designer while working on a plan carries in his imagination the whole house, conscious of what changes in elevations and mass relations will naturally follow a change in plan. The "Beaux Arts" school of architecture in Paris has developed to a science the organization of design through the plan. A glance through a book on the history of architecture and a study of the ground plan of some formal building, such as a cathedral, will make this idea clear.

The designer starting a house project creates a mental picture. He thinks in bulk. First it may be of a large rectangular prism with smaller prisms attached to it thus and so, and covered by such and such a roof system. He thinks first of the solid forms, and gradually of the aspect from various directions. His first transcript of ideas to paper may take form as a perspective sketch, as an elevation, or as a plan: usually, indeed, as all of these, sketched in rapid succession; but once the design assumes fairly definite form, the plan is the drawing by which it is first definitely developed to precise conclusions.

In the architectural schools, the greatest part of the time in designing projects is spent in prolonged and searching study of plans, because they imply considerations of the whole; the backbone of the design, its main and minor axes, and distribution of parts about them. In thus emphasizing the importance of the plan, however, one must see in it merely a key to the construction and massing of the whole building.

It might be thought that house designs should become standardized, like bicycles or railway coaches, and remain the same for ten years at a time, if not for a hundred. But house changes are constant, even when occupied by people of the same station in life. The causes of variety are several, among them the following:

1. Change in social usage. Certain decades are more formal and serious in habit, requiring an austere regularity in plan; or amusements change, as from card-playing to dancing. (An exclusive dancing hall in the basement or other part of the house is a recent innovation.)

2. Mechanical appliances cause changes in house equipment and utensils. Methods of heating, lighting, cleaning (as by vacuum), and of conveyance (as by automobile, with a garage

in the basement or front yard) affect planning. A house with steam heat from a central community plant, or with indirect lighting and consequent light ceilings curved to reflect light, or with electric cooking, will not have quite the same appointments or appearance as a house of the year 1900, when these appliances were not available.

3. Public service varies. Today less work needs to be done in the house than was formerly the case. There are public laundries and bakeries. The number of servants may vary from many to one, or to only a fraction of one, as window cleaners and some other servants may be engaged by the hour.

4. Prevalent architectural habits or styles change (more slowly than fashions in dress, fortunately) but persistently. When architectural changes in style are steady growths in healthy directions, the style will become finely adapted to express the temper of its times, following the development rather than leading or coaxing it.

5. Conditions of building site vary, as within the narrow limits of a city, a moderate suburban lot, or an ample estate of many square miles; again, in the character of the ground, as sloping or hilly; or in the climate, the prevailing winds, or exposure to view.

6. Variation in the sizes and social conditions of families is probably the greatest cause of change.

A classification of all possible houses may be made from many different points of view. In regard to the type of plan—as the central entrance type, the corner entrance type, a city house, a country house, a three, four, six, or eight-room cottage, or a ten, twelve, or twenty-room mansion. And again, a classification may be made on the question of cost, which in many ways is the most comprehensive of all classifications.

Enough has been said to indicate that the complete range of possible study is immense, and also that the desirable variety of house plans to fit varying requirements is likewise infinite. If one will grasp the essence of house design he must limit his study to a definite field and cover that field completely. Thus, this study will be concentrated upon the field of suburban houses, costing in prewar times $1,200 to $12,000. Such are the plans of Plates II and III which follow, and such, with few exceptions, are the exteriors which have been studied in previous chapters.

(The plates of plans are folded to place in a folio on the inside of the last cover of the book so that in reading this chapter they may be spread open and readily referred to.)

The plans are drawn to the uniform scale of $\frac{1}{24}''$ to the foot, so that comparison of different houses and rooms as to size may be readily made. If a plan on the plate looks twice as large as another, the house is also twice as large.

SPECIALIZATION OF ROOMS

It is well to consider to what extent and why specialization in rooms is desirable. Thoreau lived in a one-room house by Walden Pond, and while there developed the experiences of life which are set forth in a masterpiece of literature. More rooms would not have served his purpose of a house as well. Barrie has written about a certain class of Scotch people who have but one room to serve as kitchen, living room, and for all social purposes. One end of this room, called the "ben," is considered more "genteel" than the other; occupy-

ing this end is called "sitting ben the hoose."

This beginning of one room and partial differentiation is probably typical of development in all countries where modest circumstances prevail, as witness the New England kitchen. If the housewife must cook, smoke meat, spin, weave, and perform countless similar tasks while also rearing and tending children, as did early settlers in this country, the large New England kitchen, which accommodated these industries, and also included the dining table, and the parent's bed in an alcove, with the children's bed beneath, was probably the most efficient for its purposes, as all things could be watched at one time.

Picturesque it certainly was with its wide fireplace and beamed ceiling. The reason for a change to our many-roomed houses is chiefly that we have more leisure for "sitting ben the hoose" and consequently provide for it with separation of rooms and the luxuries of davenports, library tables, book shelves, writing tables, hammocks on porches, morning rooms, and evening rooms. The leisurely portion of the house is set off from the work portion, and the sleeping rooms are set apart from either. Individual members of the family have increasing privacy, and guests have certain allotments.

General Organization of Plans

The grouping of rooms according to their particular function is called the general organization of a plan. A glance over Plates II and III (in folio in last cover) will show how complete this differentiation and separation of rooms has become. In plan No. 127, Plate III, for example, from the reception hall one turns to the left into a vestibule, and from that into a guest's bedroom. The guest may enter the living room without invading other parts of the house in the slightest degree, not even to the extent of using a family passageway. His domain of bed chamber, bath, closet, and even a vestibule for hat and other outer wraps, is distinct. The vestibule affords the isolation of two doorways from the living room.

The living room, library, and dining room are "connected general family rooms" in a region distinct from other parts of the house. A rear hallway leads in one direction to the suite of family chambers, including sewing room, dressing room, bath, and sleeping porch; in the other direction this rear hallway leads back to the service section of the house—kitchen, pantry, laundry tubs, rear porch, and basement stairway—with the servant's bedroom and bath in its distinct and isolated domain. The parts overlap, it is true, but only where they should overlap; the guest and family portions overlap in the living room, the servant and family portions overlap in the kitchen, and so on. The parts which are thus clearly differentiated are: guest public, guest private; family public, semi-private (library and sewing room), private (sleeping rooms); servant working portion and private portion.

Orientation and the Two Principal Types of Plans

The corner entrance and central entrance are the two types of plans most commonly found, although a "cross" and "T" shape are sometimes met with. The central entrance plan, if large, may develop into the "H" type. Another plan found here and there is in the shape

of an "L," and the house is sometimes arranged in the shape of a "U" to enclose a court or "patio" open to the sky.

Plate II shows plans 100 to 116 of the corner entrance type; Plate III shows plans 117 to 131, of the central entrance type.

The corner entrance type is forced into use by narrowness of lot, and hence is much the more common in cities, where a narrow hallway and a living room occupy the full width of the building site. This width is often 25 feet. With a slightly wider lot, say 33 or 50 feet, a narrow driveway may be left on the lot from front to rear along one or both sides. But this type of plan is used sometimes on ample lots because its arrangement of rooms is the one which best suits some families and social conditions. It is the type of plan which easily places the living room and dining room together, and yet allows an inconspicuous entrance from front hall to either, thus retaining the independence of each room and yet perfect connection between them. The central entrance usually, but not always, separates these two main rooms.

When the dining room is used partially as a living room or as a study, or in general as an overflow from the living room for parties or for family use, or when it is desired to heat both rooms from a common source, the corner entrance will be preferred. It favors compactness in other respects, as plans 109 and 111 show. In these either the front door or the single stairway is easily reached from the kitchen, or, to state it in a more fundamental way, the front door is equally accessible from and commanding of the living room, the working room, and upstairs. This is desirable in a house with no servant, or, with a servant, in a house planned to save steps.

The central entrance type is more formal in its nature and favors the isolation of dining room and living room; reasons for such separation occur where the table appointments in preparing and clearing away meals are attended by a servant, or where the living room is kept quite formally as a guest section, and the dining room quite generally in the disorder of a children's nursery or study. Under such circumstances, servant or no servant, it may be thought desirable to separate the two rooms by a hallway. The separate living room of the central entrance plan usually has a larger area uninterrupted by doorways (plans 118, 122, 126).

Again, the desirable views or sun exposure available at different times of the day may make desirable for some houses an arrangement of rooms like 105, corner entrance, and for others an arrangement like 126. In the latter the frontage is southeast, and it is evident that a corner entrance would spoil the most desirable sun exposure, as it would take the place either of the breakfast room or of the sun room. In plan 105 the front door faces northwest; the sun exposure of dining room, kitchen, and living room is the same as in plan 130 (the dining room corner of each house is toward the south). Therefore each has the type of plan which best suits its rooms.

In most sections of California sunshine is desired in all rooms at the times when they are occupied; mornings in the dining room, afternoons in the living room. This seems to be the general feeling in many other localities, but in planning one should fit the plan to what is found by experience to be most desirable for the locality.

Halls, Passageways, Routes, and Doors

When houses were first divided from one into two or three rooms, mere partitions separated adjoining divisions; later passageways appeared. The economy of a passageway is that it lessens the number of doorways in the walls of the rooms. In a house built strictly on the passageway principle, each room contains but one door, which opens onto a passageway, which passageway (of which stairways are a detail) meanders throughout the whole house, so that one may pass from any room to any other without entering or disturbing a third room. To maintain this principle rigidly is not desirable in houses, although it seems to fit the needs of office buildings. More than one door from a room is often desirable, as from a living room to a porch, or from a kitchen to a pantry, or from a chamber to a bathroom or dressing room.

Circuit of Circulation

In many houses a circuit of circulation may be traced through the family public and semi-public portions. This permits a secondary or inconspicuous exit and consequent avoidance of undesirable meetings, and helps in the differentiation of guest, family, and service portions of the house. This principle is as important as the principle of passageways, but it must not be overpracticed, or rooms will become crisscrossed with passage routes. For doors are a necessary evil in that they consume wall space, and routes to them consume floor space, not only for the width of the door but much more, as one in reaching for the door knob stands at one side, and not opposite the door, so that space on the wall beside and behind a door must be left free for its easy use.

The amateur designer in looking at a plan imagines himself in some spot of a room with a desire to go elsewhere. He thinks how fine to place a door where it will exactly meet that contingency; it seems terrible to him to be compelled to use a less direct route. For example, in Figure 113, suppose a person sits reading near the rear window of the dining room and wishes to go to a cherry tree almost within reach in the yard. He must cross the dining room to the double acting door, and thence pass through the middle of the kitchen and across the laundry porch before getting out of doors. If the dining room window were made into a door he could pass out directly; but if this window were a door it would be used by people who are not wanted at that place, and the dining room would become a passage route and its wall space and floor space for use as dining room would be lessened. It is almost safe to say, "When doubt exists as to utility of a door or window, leave it out."

In placing doors it is desirable to have them on opposite sides or ends when one is an exit or means of retreat, but at other times it is desirable to have them grouped into the same end or corner, as in this way the adjoining floor space only becomes passage space, while the greater part of the room is left free for use as room.

It is well to study plans with reference to:

1. Shortness of routes to all parts of the house from the important centers, such as the main entrance, the living room, and kitchen.

2. The provision of second entrance or retreat or "circuit of circulation."

3. The available wall space and usable floor space in each room for the functions of the room.

Plans 125 and 126 are the first- and second-floor plans of a house which is very perfect in the second and third respects. One may enter each room by one door and leave by another; yet the wall spaces left are ample. The living room has no retreat, however, and no rapid route toward the kitchen, unless one uses the French windows for that purpose; but with the travel route confined to one end it has unbroken dignity and repose as a living room. Plans 116 to 130, inclusive, also show living rooms whose tranquility is preserved. In plan 127 the living room opens into both library and dining room, but its great size permits three doorways without serious loss of repose for its own functions.

The kitchen requires especial care against becoming a criss-cross of passage routes, and against its wall space being too much absorbed by doors. As the center of the working or service section of the house, it needs communication with the rear porch, and with the dining room, either directly or through a pantry. In addition, it sometimes has a door to the cellar, and another to the back stairway. It may have a door to a maid's room, and sometimes to a breakfast room, and it must have several cupboards of its own.

To have all of these is impossible. The remedy is to introduce a back hallway from which the stairs and porch door may be taken, or to let rear porch and pantries in part serve as passageways for the other doors mentioned. In many houses, used as they are, it is well to unhinge the door from kitchen to pantry and use it for kindling wood. The way to ascertain if this is desirable is to notice if it is commonly or universally kept open. Plan 107 shows a kitchen with five doors. Two of these could be unhinged. This plan is duplicated eight times in the same block, and the kitchen is generally spoken of as difficult to accomplish work in. The five doors are one explanation; other causes will be mentioned in Chapter VI.

In examining the kitchen plans on the plates, it is noticed that many of them have three doors, a few, as 120, 128, 129, 130, 100, 105, 109, 115, have but two doors. Kitchen 144, page 88, has but one door and is the most efficient kitchen, as will be shown later.

Axial lines, and a backbone of design are matters to consider and look for in a plan. Important openings should be placed on axes, or balanced symmetrically on each side of them, unimportant openings "off the axis." When it is impossible to do this, the axis of the room may still be sufficiently indicated in some other way, as by a fireplace or important article of furniture "on axis." A chamber door may be in one corner, but in that case one seems to enter in the corner, and the door will not mark the axis.

DETAILED CONSIDERATION OF SEVERAL PLANS, WITH REFERENCE TO THEIR ADAPTABILITY TO CERTAIN SOCIAL CONDITIONS AND USES

Plan 100. A guest may be received in the small hallway, his overcoat and hat may be placed in the closet, and then he can be taken into the living room and introduced to the family, or, if his errand is brief, he can be seated in the hall and the errand can be transacted there, the members of the family not con-

cerned remaining in the living room undisturbed. If an upstairs room is rented, as is often the case in a house of this size, the "boarder" may pass to his room with little disturbance of the family. But in this plan there is no route from kitchen to upstairs without passing through the living room. In the case of a maid, or a mistress doing the house work, this would be awkward many times. The remedy would be to cut a door from the pantry to the hall, but this would spoil a coat closet on one side and a dish cupboard on the other, and the plan probably is preferable as it is. The porch of this house opens from the living room and could sometimes be used for serving meals.

Plan 102. This entrance hall may serve as a reception hall in a minor way. The front door is not too conspicuous from the living room, the passage to the kitchen end is rather direct, easy for the kitchen maid to attend the door and also near the stairway. A coat closet is convenient for members of the family.

A rear stairway meets the difficulty found in plan 100, and leads to a servant's room which is isolated from other chambers.

This is a typical plan for a narrow frontage in a semi-city location.

Plan 104. The vestibule lacks a coat closet, but is important as an entrance to three rooms. The adjoining bedroom is conveniently located for a guest. If a passageway were cut from the inner end of the bathroom, the planning would be more perfect. (See plan 128 or 116.) The dining room is in most respects a living room and serves somewhat as a passageway. In bungalows of this type, however, this function of dining room is preferable. The proximity of kitchen indicates an arrangement for a house without a servant. The house is very suitable for a family with small children—the essential disorder of the living portion is isolated from the so-called living room.

Plan 105-106. This house has a reception hall of ample size and isolation for relief of the living room for certain types of callers. Although the stairway goes up from this reception room, its railing goes up to the ceiling, so making an ample screen, and its location permits a member of the family to use it inconspicuously. The views from three sides of the house are unusually fine, and the windows are placed accordingly. Also, the axis of living room is extended across dining room through a door onto a porch. The porch has the warm, sheltered side of the house.

Plan 107. This entrance has all the convenience of 105 and also affords a short connection, protected by two doors, with the kitchen. In the connecting passage is a telephone, isolated, and yet near the kitchen, the living room, and the sleeping rooms. The route upstairs from the kitchen is inconspicuous from the living room. The defect of this plan is that it is one-half of a double house, and the living rooms receive little sun because the exterior end is occupied by hall, porch, and kitchen. The kitchen also is poorly arranged, as will be shown in Chapter VI.

Plan 109-110. This plan also is well arranged in its entrance hall and stairs, with a compactness of approach to either living room, kitchen, or upstairs which makes it easy for the housekeeper and yet with the three avenues just mentioned sufficiently screened. The front hall with its bench in one end will often save an invasion of the living room. The route from upstairs to the

telephone closet is too conspicuous, and its distance from the kitchen is too great. The combining of living room and dining room is a matter of household policy which will have to be decided by the people who use it. The kitchen is rightly kept on the street side, as the rear of the house, from the street, overlooks the Golden Gate some six miles away, and the street view is less attractive. The exterior is Figure 115, page 58; the living room interior, Figure 163, page 101.

Plan 111-112. This plan presents desirable advantages in proximity of front door, coat closet, stairway, and passage to kitchen. It also has a well-located lavatory on the first floor. The kitchen and breakfast alcove are well arranged. The circuit of circulation is complete. The second floor is very compact and economical in passage space.

Plan 116. In this plan axes and views along them have been well considered—as the axis along the hall and through the dining room, continued along the narrow cement walk to the back fence, where a trellised screen with shrubs forms the terminal. The dining room is a passage route, but from the arrangement of shelves one may see that the "sun room" probably usurps the dining room functions. The small hall leading to the bathroom is much preferable to the arrangement of plan 104, although a smaller bath room results.

Plan 117. The exterior of this plan is Figure 26, page 18. The house is very tiny, with the entrance directly into the living room. This is obviously a wise arrangement for some families. It is better to undergo an occasional annoyance than to injure an otherwise pleasant living room by taking space from it to build a vestibule. Plans 120 and 128 have also omitted the entrance hall, but 128 has a coat closet near the door which mitigates the omission.

Plan 118-119. This is very compact, with the essentials of good planning for a small house. The front door commands equally the living room, upstairs, or the kitchen and the study. An isolated servant's room opens from the back porch. The dining room takes the form of a breakfast alcove which can be extended into the living room when more space is needed. If the study should be wanted as a sewing room or office for the mistress of the house, a door could be made to the kitchen.

Plan 121-122. This plan is similar to the last in many respects, but showing a variation for different conditions. One has an exit from the living room, the other from the dining room.

Plan 130-131. The exterior of this house is shown in Figures 91 and 92, page 45. The arrangement of halls is one which is often found in large houses. The hall extends from front to back, with the stairway on one side and a coat closet on the other. A rear stairway ascends from a small hall near the pantry and joins the main landing well up and out of sight of the main hall below. At the rear of the main hall is a lavatory, and opposite an entrance to a basement stairway, so that the owner or servant can easily tend the furnace. An Eastern house would want the basement stairway to descend from the service portion of the house, but in California the basement is much less used for storing foods on account of the cooler and dryer climate. This hall extending to the rear the full depth of the house, almost definitely indicates a formal garden or living terrace on that side. In fact, this house is on the

top of a hill with fine and extensive views in both directions from the living room. Hence the windows of the dining room and living room extend to the floor and the flower beds make window boxes unnecessary. Many other houses with this type of plan in other respects do not have the laboratory study, but instead a living room porch across that end.

THE PROBLEM OF DESIGNING FOR SERVANTS OR WITHOUT SERVANTS

Sixteen of the twenty houses represented on Plates II and III, at the time these drawings were made, were cared for by members of the family, without servants. One other probably had no servant, and two were not visited. Yet the majority of the twenty houses presuppose a servant in the planning. The occupants of the houses include as typical: professional people, lawyers, preachers, bankers, physicians, teachers in public schools and universities. In a very few instances servants were employed, except during vacation time. Help for one or two days a week was quite usual.

In discussing with the various mistresses concerned the opinion was quite generally expressed that "doing one's own work, with outside help for one or two days a week, is easier, pleasanter, affords more leisure, and is more desirable than to have a permanent servant."

The houses range in price from $1,200 to $12,000 (prices of pre-war times). With a range from $10,000 to $25,000 the employment of servants and desire for them would obviously be prevalent. And, of course, all families at some times must have servants, as when guests are present or when children are very small. But the tendency in houses of the class here represented is clearly toward employing full-time servants as little as possible.

This fact has an important bearing on planning. It makes compactness and simplicity very desirable. The two doors between kitchen and dining room are less needed, the breakfast alcove becomes important, and either the kitchen itself or some room opening from it, as a living room or dining room, is desirable for use as a day nursery or school room. Planning under such conditions should be studied for the utmost economy of labor in performing the daily routine of work. Smallness of size is one important item.

In first deciding on a type of plan the question of the arrangement which will be followed, either providing for a servant or providing to dispense with one, needs careful thought. When the decision is made the house should be planned accordingly. The question of difference will be in isolation of working portions, size and number of bathrooms, and similar items. Take, for example, the question of a pass pantry. With one, there are two doors and a greater distance from the working centers of the kitchen to the dining room table, and consequently the servant herself and the noise and odors of the kitchen are kept from guests and members of the family in the dining room. If there are two servants in the house, one serves the table and washes dishes in the butler's pantry, so keeping out of the way of the other servant in the kitchen. But without a pass pantry, with one direct door from dining room to kitchen, and with a china closet, the shelves of which open on both the kitchen and dining-room sides, the labor of dining-room service is much diminished.

Of the twenty plans the following have the pass pantry: 102, 107, 109, 124, 126, 127, and 130; the thirteen others have none. Some of the families who have them would prefer the direct connection. But at least five of the twenty mistresses have pass pantries and want them. The writer does not wish to urge the universal adoption of either plan to the exclusion of the other, but merely to make clear the tendency of today and the reasons which should govern a decision.

It may be argued that if compact planning and consequent lessening of steps is desirable for a mistress doing her own work, it is also desirable for the servants; if a breakfast room is convenient for one, it is also, in slightly different form, convenient for the other.

A servant in the house requires provision of sleeping room and bath, items of considerable expense.

INDIVIDUAL ROOMS

THE LIVING ROOM

In the twenty houses under discussion the living room is just what its name implies, the common room for the social life of the family. The typical living room is occupied but little in the morning, many of the family not even sitting down in it before mid-day, although a few receive intimate morning callers considerably, and finish their morning work early, say at nine or ten. It may be used for morning music practice, and aged members of the family may give it constant morning use. During the afternoon the mistress will use it for herself and callers, and the whole family will use it as a gathering place during late afternoons and evenings and all day upon Sundays. The hours of its use suggest that it should have the finest view, and if consistent with the view, the most favorable afternoon sun. Its shape may be oblong or square. A narrow, oblong room may be used by two groups of people. The fireplace should be in the center of the long side to permit a large circle about it. Corner fireplaces, as found in plan 107, accommodate but a few people. This room is also poorly lighted at one end and hence its working space is diminished. One distinctive quality of the living room in plan 124 is that a person seated in any part of the room feels within reach of the fire. This is desirable if the living room is not too large.

THE DINING ROOM

The dining room may be used for serving three meals a day, although a breakfast room may usurp this morning function; and often it is used in part as a living room, sewing room, children's play room, or as a study when it affords more seclusion than does the living room. When used strictly as a dining room it should be nearly square. A dining room with octagonal or oval corners is an ideal shape, and an eastern exposure is generally preferred, but the dining room takes what is left after the living room is provided for.

PORCH

The entrance porch affords protection to one entering or leaving—a place to raise or lower an umbrella or to remove overshoes—and it makes a transition from house to out-of-doors.

The main porch of a house as distinct from the entrance porch is an out-of-door living room. The present California tendency is to make the main porch either a mere terrace without roof, or a sun porch completely en-

closed. The glazed porch is frequent in the East, also. The transition between the two is a porch with a pergola roof covered with vines which give shade in summer and shed their leaves in winter and so let light into the rooms of the house. Many bungalows of recent style, in seeking picturesqueness and in extending the main house roof over the porch, have cut off view and sun from the important rooms.

SLEEPING ROOMS

It is important in these to see that each article of furniture has a proper space and proper light. The sleeper's eyes should not face the windows. The person using a dressing table should have direct light in the face, either from both sides or from a high window in front, or from artificial light from the same direction. It is also desirable to have cross ventilation, with windows on two sides of the room, and plenty of them. Drafts are not as deadly as our grandparents thought them.

Sleeping porches are an experiment of the last ten years and are not yet a finality. They are undoubtedly desirable during most days of the year, but one should not have his bed rained upon, and this is difficult to avoid in some climates. In some localities the rain comes from one general direction and never drives in from others. When this rain exposure for sleeping porches is necessary, the most satisfactory treatment is to provide windows with which it may be closed. When this is done the sleeping porch becomes a sleeping room with one or more all-glass sides, and this may be the ultimate solution of the sleeping-porch problem.

Several ingenious relations of chamber and bathroom are possible. A bath connecting two rooms is frequently the best that a modest house can afford, although a separate bath for each room is what all would prefer. A single bathroom with direct doors to two chambers and also a third door from a hallway should be avoided unless at least one of the doors is continuously kept locked. The purpose of two doors in such a case is to throw the bath "en suite" with either of two rooms. In a house with but one bathroom, one door only should be built.

The tub built solidly into a recess, with tight joints at walls and floor, is best; it then forms a shower alcove. Separation of toilet and bathroom is desirable, but not so important when each chamber has its separate bath. The first floor in two-story houses should have a toilet, and under many circumstances this should be easily accessible from the rear porch.

CLOSETS OR WARDROBES

Each chamber needs a clothes closet with ample space; 3′x6′ is excellent, with a door on the 6′ side. Many, if not most closets are less, about 2′x5′ or 2′x3′. The advantages of built-in wardrobes over closets is that clothing may be more readily seen and reached in them. They should be about 6′ wide, shoe shelves or drawers beneath, garment rail above, and hat shelf at the top. They take more wall space from the room than a single closet door, and space for them is not always available.

There should also be a linen closet for the chambers. This sometimes takes the form of a built-in cabinet, with a separate sliding shelf for each bed in the house. An upstairs closet in two-

story houses for brooms and other cleaning appliances is desirable; also a clothes chute to the laundry.

GENERAL ADVICE ON ATTACKING A PLANNING PROBLEM

Inexperienced people intending to build are somewhat prone to spoil their chances of getting a good design by starting to plan like some house in which they have lived, and becoming committed to it without considering some scores of other types of plans, some one of which may better suit their particular needs and building site.

A better procedure is to draw a plan of the lot, and on this a rough rectangle representing the house, then decide which corner affords the best view and exposure for the living room, next the dining room and entrance hall, next the kitchen, etc. In short, design according to fundamental principles of planning and the conditions of the particular problem. Do not be content with one scheme but try several. The services of an expert architect are invaluable in this connection, both because he can the more readily manipulate the rooms and passageways into a workable plan, and also because he can at the same time build up a block organization which will make beauty of exterior possible.

Study the evolution of your house plans earnestly and sympathetically with the architect; your coöperation will be invaluable to him. Bend your efforts toward making him acquainted with your social habits and the manner and times at which you will use each room, then trust him to arrive at the most feasible solution of the problem, remembering that the ultimate solution will have to be a compromise of interests. In any event do not commit the folly of hampering the architect in his artistic and planning judgment.

CHAPTER VI.

THE KITCHEN AND PANTRIES

To design a kitchen well requires not merely that stove, sink, and cupboards shall be provided somewhere, but that these shall have the best possible location with reference to each other to accommodate the work to be carried on. The best arrangement of kitchen working facilities can be obtained only through the observance of fundamental principles of industrial engineering.

The *routing principle* is fundamental in organization of work. The two fundamental routes in kitchen work are (1) the route of food preparation and serving, and (2) the route of clearing away.

THE PREPARING ROUTE

The process of frying and serving a fish will illustrate the first route. The fish is taken from the cool closet or refrigerator to a preparing surface, is scraped, washed, rolled in flour or meal, salted, placed in a skillet with frying fat, fried on the range, placed on a serving platter, and set on the serving shelf ready to be carried to the dining room.

The preparing route suggests a rotation of cooling closet or refrigerator, preparing surface, range, and serving shelf; and furthermore, that each station shall contain, immediately within reach, the utensils and materials needed for the operations at that place. The preparing surface needs a knife and garbage receptacle, flour, and seasonings; the range needs a skillet and more seasonings and frying fat, and perhaps matches and fuel bucket (unless gas or electricity is used).

The serving shelf should be near the dining room and a serving platter near the range. In a well-arranged kitchen about eight steps will be sufficient to accomplish the preparation of the fish.

To get further light on the preparing route, consider the preparation of hot biscuit. The rotation will be a mixing bowl, milk and butter from cool storage, water (by most people), flour, baking powder, salt, sugar, and a kneading surface at the preparing counter. Next a baking tin and the oven, and finally a serving plate, leaving the biscuits on the serving shelf or warming oven.

Again, consider the preparation of such a vegetable as carrots. The route will be: cool closet to sink, where they are washed and scraped, thence to a cooking vessel, to range, to serving dish, to serving shelf.

An egg would pass directly from cool storage to range, milk and bread directly from storage to serving shelf or to dining table.

THE CLEARING-AWAY ROUTE

The dishes are taken from the dining room to the kitchen on a tray (a wheeled tray preferably), unused foods are put away, garbage is disposed of, soiled dishes are piled on a drain board (preferably on the right-hand board, but right or left makes but little difference), then washed and placed on the left drain

board, then dried and placed in the cupboards, silver in drawers or on trays; the cooking utensils are cleaned and put away, dish clothes and drying towels are cared for, the working places are cleaned, and the clearing away is complete.

The working centers of the kitchen operations are three: the preparing table or counter, the range, and the sink. Almost of equal importance in placing are the cupboards for table dishes and the cool closet. Grouped about these centers must be all needed accessories, garbage receptacles and the like. The preparing surface and range belong to the route of preparation; sink, garbage receptacles, and cupboards belong to both routes. What arrangement best meets the requirements and causes the least number of steps?

Assuming that the dish cupboards are in the kitchen, the following theoretical diagram shows a frequent arrangement.

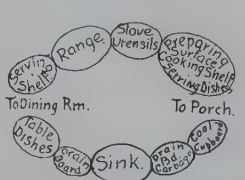


Fig. 132. Diagrammatic arrangement of a compact kitchen.

If a second sink and garbage receptacle are placed between the cooking shelf and range the preparing route will be continuous from cool closet or preparing surface past the range to the serving shelf. Also the clearing away route is continuous. Without this second sink steps must be taken from cool closet, from cooking shelf, and from range, to and from sink.

The opening toward kitchen porch may be in some other place without serious change in the routine.

When it is remembered that many foods—milk, bread, pastries, and "leftovers"—pass directly from storage to the dining room, it may work best to have food storage places near the dining room. In that case the diagram below has advantages.

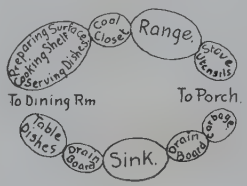


Fig. 133. Diagrammatic arrangement of a compact kitchen, alternative plan.

This arrangement with the cooking surface close to the dining room is a frequent one in many houses when the cooking counter and china closet are in a pass pantry. But it is less frequent in houses with no pantry.

Again many trips must be made across the kitchen from the cooking shelf and range to the sink.

In order to attain the greatest efficiency the article marked "preparing surface, cooking shelf, foods, and serving dishes," will be a very large affair built on the kitchen cabinet principle, with a broad working surface and with kneading board, flour, meal, sugar, baking tins, and other utensils beneath; and with mixing bowls, some staple foods — coffee, cereals, and bread — above or below; also with shelf room for storing some cooked foods and serving platters and dishes. The working surface is available as a serving shelf, a vertical slit for holding trays is desirable, and the counter space should be open at the ends that the trays and other things may slide in easily. A width of six to ten feet is needed for such a cabinet if it contains all of the facilities enumerated.

When the table dishes are located in the kitchen, the cupboard containing

them may share certain functions of this cooking cabinet, as the storage of unused foods.

Since in most kitchens there is but one sink, a narrow room is advantageous; a glance at the theoretical diagrams (Figs. 132 and 133) will show how a narrow room shortens distances between the sink and other centers. Such are the kitchens in plans 115, 120, 122, and 128. Indeed, if the kitchen is small and if each of the working centers is well provided with shelves, utensils, seasonings and other supplies of immediate use at that center, any particular order of rotation and relation of dining-room entrance, sink, range, and preparing counter is not so essential, or, to state it more exactly: a very complete and convenient equipment of the three working centers and a small floor area between them will compensate for a faulty rotation.

But complete equipment means completion, a receptacle for both used and unused matches at the range, salt, and other seasonings, and cooking butter or lard at both the stove and the cooking counter; also many things need to be kept in duplicate near the sink. The egg beater, can opener, coffee pot, and dozens of other articles need to be carefully placed in the most advantageous position. The old adage should be amended to read, "Many places for some things and enough things to supply all the places."

Three kitchens which have been planned by their owners with thoughtful anticipation of the specific use of each shelf and drawer are illustrated on the following pages.

The elevations of the cabinets are given, and the lists beneath indicate their uses. Close study of these kitchens as shown in their photographs and cuts is quite illuminating, both as to the extent and multiplicity of needs in a kitchen, and the ingenuity with which these needs have been met. These are the kitchens of plans 129 and 130, previously mentioned, and Figure 144, page 88. The routing diagrams and test operations as applied to these kitchens follow: (The steps indicated are not intended as examples of efficiency in cooking but merely as "standard operations" by which the efficiency of one kitchen may be compared with another.

STANDARD OPERATIONS

I. *Frying a Fish*

1. Start at cool closet, take fish, presumably in a paper, to the sink and cleanse.

2. Retaining the paper, take fish to flour, roll in flour.

3. Retaining the paper, go to skillet, place on stove, fry and salt. (Drop paper in coal bucket.)

4. Get serving platter, heat, and place fish on it.

5. Set skillet on back of stove, take fish on serving platter to serving shelf near the dining-room door.

(It is assumed that a cleaning knife and garbage receptacle are already at the sink, and that frying fats, matches, a cooking knife, and salt are within reach of the stove.)

II. *Baking Biscuit*

1. Start with a mixing bowl at the place where it is kept, go to the cool closet and get milk and butter or lard.

2. Take to baking shelf, add flour, salt, baking powder, and water. (The use of water is a disputed point, but it is assumed to be used in this case as a more severe test.)

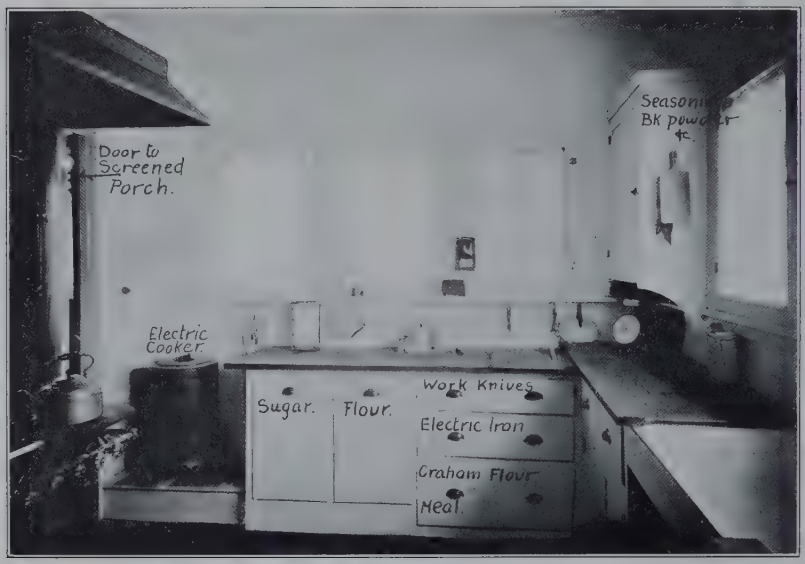


Fig. 134. View in the kitchen of the Dr. Jerome Thomas house, Palo Alto, Cal. Looking toward the cooking counter. Mrs. Thomas, designer. (Floor plan of the whole house, Plate III, No. 129.)

Fig. 135. View in the kitchen of the Thomas house, looking toward the serving shelf and dining room.

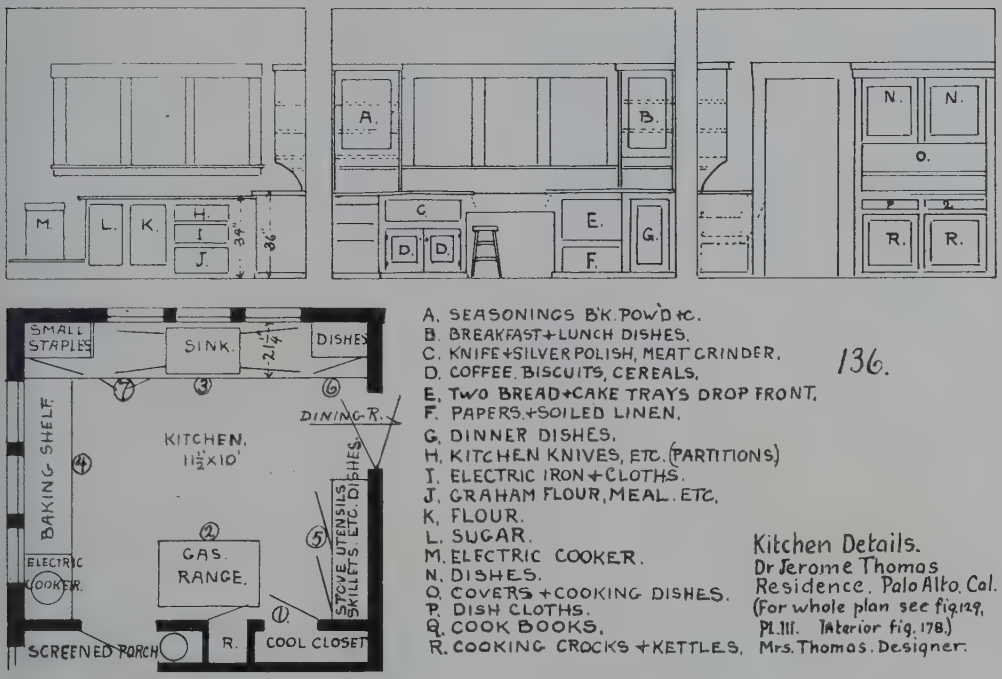


Fig. 136. Plan and cabinet arrangements of the Thomas kitchen. Scale, 3/16" = 1'.

3. Get a baking tin, cutter also if desired, and put in the dough.

4. Take to and place in the oven.

5. Get a serving plate, heat it, and place the biscuit on it.

6. Set aside the baking dish on the stove, place biscuit on the serving shelf.

III. *Cooking Carrots*

1. Get a cooking dish, go to cool closet and get carrots, also butter, unless it will be found along the route later; take to the sink and clean.

2. Take carrots to stove, season, and boil.

3. Get serving dish from cupboard, "dish up" the carrots, season, and butter.

4. Set away cooking dish on or near stove, and take carrots to serving shelf.

IV. *Clearing Away*

(The test measures merely one mixed tray loaded with a little of everything.)

1. Start with a large tray at the dining room (measure from a point in center of dining room), load it with unused foods (potatoes, bread, milk, and butter), soiled dishes, glasses, and silver; take tray to the kitchen, pass to the several places necessary to put away foods, and take dishes to the sink, scrape them, dispose of garbage, wash dishes, and pile on the drain board.

2. Get the tea towel, dry dishes, and put away dishes, glasses, and silver.

3. Get cooking dishes, skillet, baking tin, knife, spoon, mixing bowl; wash and put them away. (Caring for dish mop and tea towels is not counted in this test.)

In measuring the necessary number of feet to travel, measure from a point in the front central edge of shelf, sink, or door; and do not count distance from center of drain board to sink.

Kitchen—Figures 134 to 136 (plan of which is 129, Plate II. Photos on p. 80).

In the tables which follow, the first figure refers to the number of the operation on the previous lists, the following figures to the stations similarly numbered on the plan. "1. 1-3....8½'" means "start at cool closet (1), go to sink (3), which measures on plan 8½ feet.

Kitchen 136—Test Operations

FISH *		BISCUIT †	
1. 1–3	8½′	1. 1–1	0′
2. 3–4	5½′	2. 1–4–3–4	21′
3. 4–2	5′	3. 4–5–4	17′
4. 2–5–2	8′	4. 4–2	5′
5. 2–6	6′	5. 2–5–2	8′
	33′	6. 2–6	6′
			57′

* Frying fat and skillet are kept always at stove.

† Keeping baking tin near (4) would save 17′ in this.

COOKING CARROTS		CLEARING AWAY ‡	
1. 5–1–3	11½′	1. Table–6–5–1–6–3,	31′
2. 3–2	5½′	2. 3–5–3–6–5	20½′
3. 2–5–2	8′	3. 5–2–4–3–5–2–4	30½′
4. 2–6	6′		82′
	31′		

‡ Table center is 11′ from (6), tray is left at (6) while taking food to (1).

The total sum of the four test operations in this kitchen is 203 feet, or 186 feet if using the shorter route for biscuit.

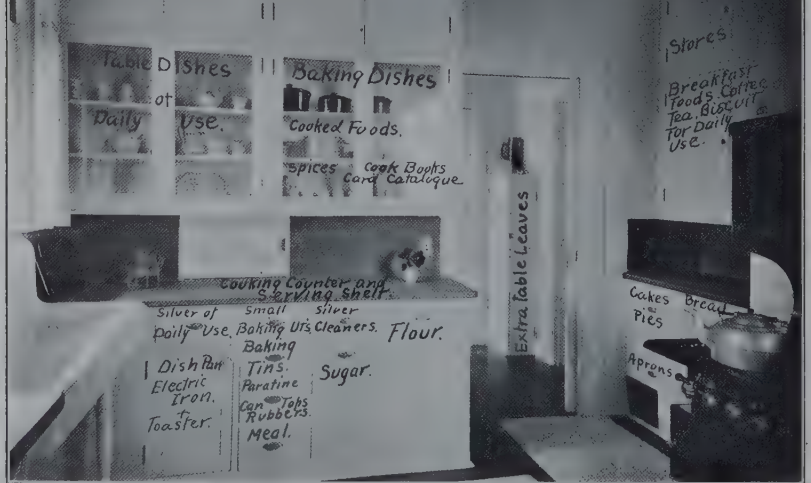


Fig. 137. View in the kitchen of the F. M. McFarland house, looking toward the cooking shelf and the dining room. (Floor plan of the whole house, Plate III, No. 130.)

The great economy of this kitchen is due to the complete equipment surrounding each working center; to the direct connection with the dining room and nearness of the dining table to sink and dish cupboards; also to the small dimensions of the room, as one can stand in front of the range and with hardly more than one long step reach cooking utensils, sink, or baking shelf.

The photograph (Fig. 135) shows a rather unique arrangement of bread and cake trays at "E"; these slide and may be readily lifted out and returned. The small open shelves beneath cabinets "A" and "B" contain seasonings, in one case for the table and in the other for cooking use. The hooks beneath the windows on both sides of the room contain frequently used articles, and shorten labor.

Kitchen (Fig. 139)—Test Operations

FISH *		BISCUIT	
1. 1–7	8½′	1. 6–1	8′
2. 7–6	5′	2. 1–6–7–6	17′
3. 6–3–4	15′	3. 6	0′
4. 4–8–4	12′	4. 6–4	4′
5. 4–6	4′	5. 4–8–4	12′
	44½′	6. 4–6	4′
			45′

* If flour were kept at (3) the operation would be 1–2–3–4–8–4–6, 26′

CARROTS		CLEARING AWAY	
1. 3–1–2	7′	1. Table–6–1–6–7	30′
2. 2–4	5′	2. 7–5–7–8	21′
3. 4–8–4	12′	3. 8–4–7–6–3	25′
4. 4–6	4′		76′
	28′		

If the skillet were kept on the stove, or serving dishes at (6), the operation would be shortened.

The total sum of the four test operations in this kitchen is 193½ feet, or 176 feet if the shortest method of fish preparation is allowed.

This kitchen shows very unusual planning in the minute details of preparation for each operation of kitchen routine. For example, the breakfast routine of preparation: The range is lighted, a tray is placed on the shelf at

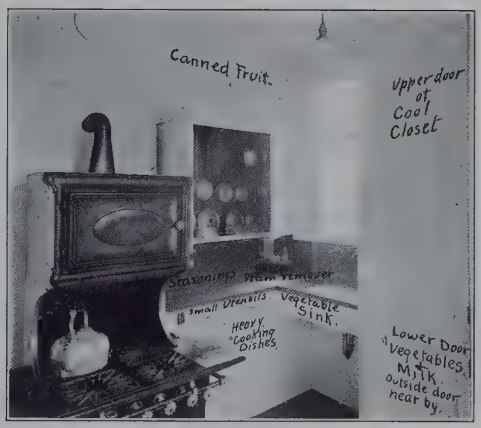
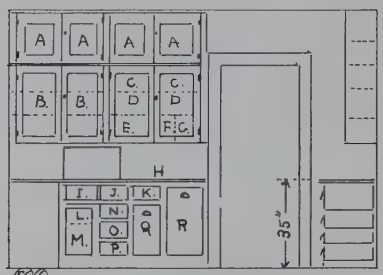


Fig. 138. View in the McFarland kitchen, showing the vegetable sink corner.

(5), and loaded with salters, cereals, coffee, sugar, and bread, all of which articles are kept in this cabinet. It is then placed at (6) and the sugar bowl is replenished if need be from the main supply bin beneath (6), dishes are placed on the tray from (8), other articles, as eggs or whatever it may be, are prepared along the route; 1-3-4-6, and the tray is ready for the dining room. In clearing away, no matter from what meal, the tray comes from the dining room to the counter (6), and some unused foods are put away, either in the dishes kept in the cupboard for that purpose, or, as in the case of the bread, in the drawer of case (5), or, again, in the case of butter or milk, in the cool closet (1); thence the tray goes to the sink, the dishes are washed, dried and placed directly in the cupboard at (8).

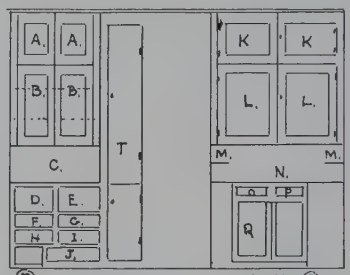
The dishes for formal occasions are kept at (9), and the dish-washing would, under certain circumstances, be done in the butler's pantry.

Vegetables are partially cleaned at a garden faucet and then placed by the gardener through a small door from



(3)(6) KITCHEN TOWARD PANTRY.

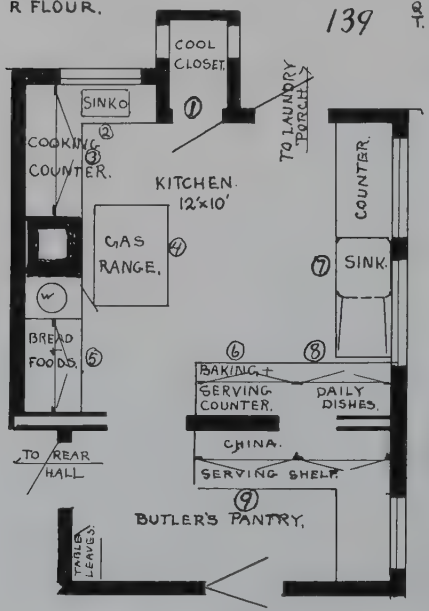
A. STORES, CEREAL PACKAGES, ETC.
B. TABLE DISHES OF DAILY USE.
C. BAKING DISHES.
D. MIXING BOWLS + COOKED FOOD.
E. SPICES. B'K. POWDER.
F. CARD CATALOGUE.
G. COOK BOOKS.
H. COOKING COUNTER, + SERVING TRAY.
I. SILVER OF DAILY USE.
J. SMALL BAKING UTENSILS.
K. SILVER CLEANING.
L. DISH PAN.
M. ELECTRIC IRON + TOASTER.
N. BAKING TINS.
O. PARAFFINE, CAN TOPS + RUBBERS.
P. MEAL.
Q. SUGAR.
R. FLOUR.

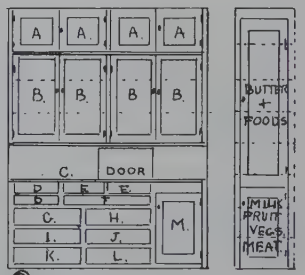


(5) KITCHEN TOWARD CHIMNEY. (3)

A. STORES.
B. BREAKFAST FOODS, COFFEE, TEA, BISCUITS. IN AMOUNTS FOR DAILY USE.
C. BREAD. BASKET LUNCH COUNTER.
D. CAKES + PIES.
E. BREAD, CUTTING BOARD + KNIFE.
F. KITCHEN TOWELS.
G. TEA TOWELS.
H. IRONING CLOTHS, WINDOW CLOTHS.
I. DISH CLOTHS.
J. APRONS.
K. CANNED FRUIT.
L. COOKING PANS.
M. SEASONINGS (R), SOAPS + STAIN REMOVER (L)
N. COOKING COUNTER.
O. KNIVES + SMALL THINGS, DAILY USE.
P. " " OCCASIONAL USE.
Q. HEAVY COOKING DISHES.
T. WATER BOILER + GAS HEATER.

139





⑨ PANTRY CASE. COOL CLOSET ①

A. JELLIES.
B. BEST CHINA.
C. BUTLER'S SERVING COUNTER.
D. NAPKINS.
E. SILVER.
F. DOILIES.
G. LUNCH CLOTHS.
H. TABLE CLOTHS.
I. MISCELLANEOUS LINEN.
J. "
K. TABLE PAD.
L. PAPER NAPKINS.
M. CHAFING DISH + ELECTRIC APPLIANCES.

Kitchen Details. Dr. F.M. McFarland. Res.
(Exteriors. figs. 91+92.
Plan Pl. III. Nos 130+131)
A.B. Clark. Arch't.

Fig. 139. Plan of the McFarland kitchen and elevations of the cabinets. Scale, 3/16" = 1'. Mrs. McFarland, in large part, the designer.

outside into the bottom of the cool closet. Milk is deposited by the milkman in the same way.

In the preparation of vegetables, they are taken from the cool closet to the adjoining sink (2) instead of to the larger sink (7).

A study of the lists (Fig. 139) showing the contents of the drawers and cupboards is instructive. For example, drawer "O," cupboard (6), contains "paraffin, can tops, rubbers" and nothing else, thus saving annoyance during preserve-making operations. Drawer "O," case (3), contains "knives, can opener, and small utensils of daily use," while the adjoining drawer contains similar miscellaneous articles of occasional use. Thus, in ability to immediately seize the article or utensil needed, in both the daily and frequent needs, time is saved.

Before describing the third desirable kitchen a poorly designed one will be taken up (plan 140). First we will perform the four test operations.

Kitchen 140—Test Operations

FISH		BISCUIT	
1. 1–2	10′	1. 6–1	14′
2. 2–4	14′	2. 1–4–2–4	39′
3. 4–5–3	13′	3. 4–7–4	12′
4. 3–10–3	18′	4. 4–3	6′
5. 3–9	9′	5. 3–10–3	18′
	64′	6. 3–9	9′
			98′

CARROTS		CLEARING AWAY	
1. 5–1–2	25′	1. Table–9–1–2	27′
2. 2–3	8′	2. 2–6–2–10	27′
3. 3–10–3	18′	3. 10–4–3–2–4–5–7–6	51½′
4. 3–9	9′		105½′
	60′		

Total for four operations, 327½ feet.

The above operations were calculated on actual conditions existing in the kitchen when it was visited. This kitchen belongs to a small house and should be so arranged as to require only a few steps in the various operations;

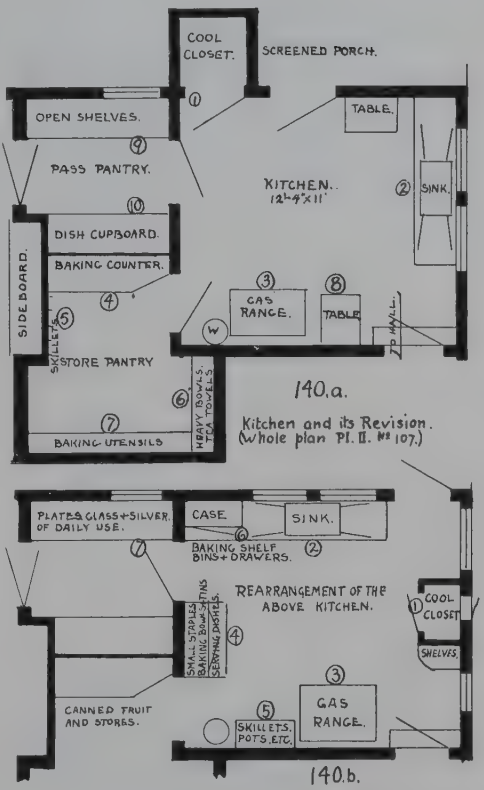


Fig. 140, a and *b*. Plan of a poorly arranged kitchen and suggestions for its improvement.

186 feet in kitchen 136 is about half, and 176 feet in kitchen 139 is but slightly more than half, the number of feet necessary to travel in doing the work in this kitchen (140). This difference is due to two causes: first, faulty planning; second, inexpert management. In area 322 square feet are found in pantries and kitchen, while plan 136 has but 112 square feet and plan 139 has but 194 square feet, although it belongs to a large, formal house.

In 140 the distance between centers of work is too great, and also five doors

are too many by three for a kitchen. In passing from the pantry to the cool closet the pantry door opens the wrong way, and for approach from the kitchen the cool closet opens wrongly. It necessitates going clear into the corner to grasp the knob, then backing out, swinging the door clear about through 180 degrees, then advancing to the exposed shelves. How much better if it were hinged on the left side. The opening from kitchen to store pantry needs no door.

Kitchen 140a Rearranged

Figure 140b shows a rearrangement of this kitchen. The sink is placed nearer the dining room, and the storage, preparing shelf, and serving utensils are placed, as far as space will permit, in cabinets like those of 3, 5, and 6 of plan 139. If the occupants could be persuaded to omit the door from kitchen to pass pantry the cool closet could be placed in the nearest corner of this pantry and dishes just beyond it. This was not done in the rearrangement, but the cool closet is placed as shown. A large affair similar to a "Hoosier cabinet" is placed near the sink to hold serving dishes and such staples and other accessories of the cooking operations as can not be accommodated at the shelf near the sink. A pot and skillet rack is placed near the range. The store pantry is used merely for stores and not for the supplies of daily use. The rearrangement is not ideal but is feasible at small expense.

The test operations follow:

Kitchen 140 Revised

FISH		BISCUIT	
1. 1–2	5½′	1. 4–1	8½′
2. 2–6	8′	2. 4–6–2–6	14′
3. 6–5–3	12′	3. 6–4–6	9′
4. 3–4–3	10′	4. 6–3	7½′
5. 3–7	10½′	5. 3–4–3	10′
	46′	6. 3–7	11′
			60′

CARROTS		CLEARING AWAY	
1. 5–1–2	13½′	1. Table–6–1–2	29′
2. 2–3	6½′	2. 2–6–2–7	11′
3. 3–4–3	10′	3. 7–3–5–6–4–2	26′
4. 3–7	10½′	4. 6–4–5	11′
	40½′		77′

Total for four operations, 223½ feet.

This arrangement has saved a large third of the travel; with the cooling closet at (7) more could be saved. Without changing the sink or cooling closet, a tenant of this house could effect a large saving by placing a large "Hoosier cabinet" to use as a cooking shelf at (4), and a pot and skillet rack near the range. Also, such supplies as seasonings should be kept both at the sink and near the range.

Only one more kitchen will be described (Fig. 143). This has interesting doors to its cupboards. See photographs 141–142.

Kitchen 144—Test Operations

FISH		BISCUIT	
1. 1–2	4½	1. 1	0′
2. 2	0′	2. 1–5–2–5	19′
3. 2–1–3	7′	3. 5	0′
4. 3–4–3	5′	4. 5–3	8½′
5. 3–4	2½′	5. 3–4–3	5′
	19′	6. 3–4	2½′
			35′

CARROTS		CLEARING AWAY	
1. 1–2	4½′	1. Table–4–1–2–6–2	39′
2. 2–3	5½′	2. 2–6–2–1–4	24′
3. 3–4–3	5′	3. 2–3–2–5–2–2–3–2–5–2	20′
4. 3–4	5½′		83′
	20½′		

Total for four operations, 157½ feet.

One notable reason of this low score, the lowest score of the four houses tested, is the proximity of cool closet and pot cupboard to stove on one side, and of stove to serving shelf and dish cupboard on the other.

It is a very perfect kitchen for many reasons: (1) It is small, but two can work in it at a time; (2) it includes pantry; (3) the working centers—baking shelf, sink, and range—are well

Fig. 141. View in the D. A. Mendenhall kitchen, looking toward the baking shelf and slide toward the breakfast room.

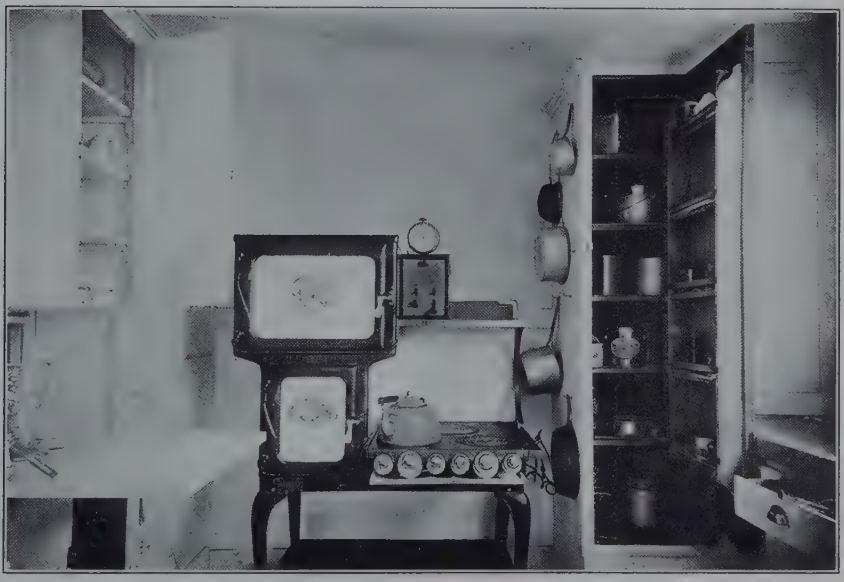


Fig. 142. View in the Mendenhall kitchen, showing the range, the pot closet, and serving shelf.

Fig. 143. Plan and details of the Mendenhall kitchen. Mrs. Mendenhall, in great part, the designer.

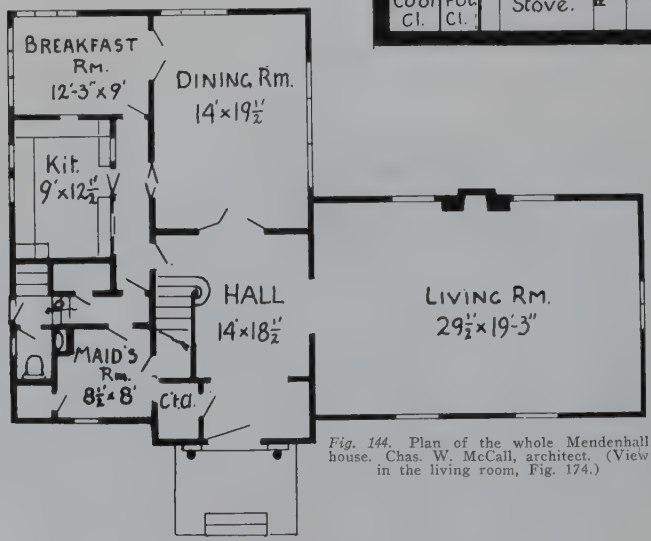


Fig. 144. Plan of the whole Mendenhall house. Chas. W. McCall, architect. (View in the living room, Fig. 174.)

placed and have close at hand the supplies and equipment which each center needs.

The cupboard doors above the refrigerator, beneath the drain board (quadrant shelves), and of the pot closet have shelves and racks. Shallow trays for silver slide from kitchen to breakfast room. Next the range is a drop serving shelf open to service hall. Food and dish cases likewise open both ways. A refuse hole is in the floor at the left of the range. Seasonings and cooking accessories may be kept at or near all three working centers.

The compact arrangement of kitchen, service passage, breakfast room, and dining room is remarkably successful. Great credit is due the owner no less than the architect.

The desirability of having a pass pantry with doors at each side to keep view, noise, and odors from passing from kitchen to dining room is an obvious advantage in many houses, but such an arrangement usually increases the number of steps and its real value over a direct connection should be carefully weighed before a decision is reached. The probable number of times per year when direct connection would be embarrassing, the temperament of the housewife and the extent of annoyance which one of her temperament would feel, are the important factors which should determine the decision.

Plan 143 meets this problem in a very skillful way with double swing doors from passage to dining room, which makes the serving and clearing away processes very easy.

Likewise the matter of keeping everything in drawers or behind cupboard doors, or of allowing skillets to stand perpetually on the stove, and knives, egg beaters, and similar articles to hang on hooks, in sight; the latter method saves time, and yet the appearance of an immaculate kitchen with everything out of sight is such a satisfaction to some housewives that they are willing to expend much time daily to attain it.

Shelf materials are numerous. Soft pine is popular because it is easily kept clean and because it is the least dangerous material on which to drop dishes. Glass is a delightful surface for certain work. An opaque, milky glass is made for mixing surfaces.

Either glass, cement, or tile is good for the splash board behind the sink and drain boards or for the entire walls; but in most houses hard wall plaster, painted with oil paint, is the only material which can be afforded extensively on walls and ceiling.

Tile is the best floor material, but linoleum is cheaper.

The sink height should be such that the woman using it, when reaching to the bottom of it, will not stoop. This, for most women, is 30 to 32 inches to the sink bottom, or 35 to 36 inches to the height of the top rim.

CHAPTER VII.

FURNITURE

There are many books which deal with this important subject. "Period Furnishings," by C. R. Clifford, is quite complete. "The Practical Book of Period Furnishings," by H. D. Eberlein and A. McClure, is a small but very fully illustrated book.

It is not wise to consider a knowledge of the "period" styles as either an end or as the completion of education in furniture, and yet one could hardly make a better beginning than by drawing several typical examples from such books as those above-mentioned, and so becoming acquainted with the styles which have affected our American homes. One should know Elizabethan, Jacobean, Queen Anne, and the creations of the famous English designers: Hepplewhite, Chippendale, Adams Brothers, and Sheraton; and the corresponding French periods of the Louis XIV, XV, and XVI, and the Empire style which became predominant in this country at the beginning of the nineteenth century.

This period furniture is not all expensive; the Windsor chairs, for example, are very sensible and economical.

The so-called Mission furniture, which was really the result of a "craftsman" movement, or a return to simple straight-line construction with heavy parts, was admirable in its motives but hardly to be desired as a finality. A perusal of the "Year Books" of the International Studio or of European magazines of the period 1900 to 1914 will show a general world-wide endeavor along lines similar to the "craftsman" movement, but conducted with more artistic enterprise and variety. This world-wide movement is said to have sprung from the activities of William Morris, in England.

The results are not all good; indeed, many recent textiles and wall papers of Continental Europe seem too geometric and mechanical, and yet the movement on the whole had a legitimate reason and proved that furnishings may be designed today by living artists, by application of mind to the problem in hand, as one would invent an appliance for any definite purpose. The best procedure for any firm or individual in furniture making is to know the best which has been done, to know not only its outward forms but its spirit; to know also the needs of the present, the utilitarian purposes, and methods of modern manufacture, then to develop artistic power by drill in space division and to attain a mastery of fine form and color harmony by study under experienced experts. With such an equipment and only with such an equipment, one may design, manufacture, sell, buy, or use furniture creditably.

DESIGN OF CHAIRS

As an indication of what elements enter into design of furniture, the following study in chair making is given.

The two prime considerations are: utilitarian (comfort and durability),

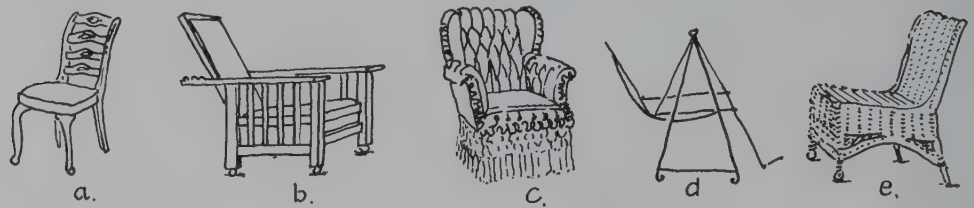


Fig. 145. Chairs in great variety for various uses.

and esthetic (beauty of line and detail and harmony with the room).

Comfort means adaptation to different uses, as light or heavy, movable or stationary, for erect sitting, as at the table, for semi-reclining, or reclining in all degrees. A great variety of chairs is required to meet all purposes, for writing, dressing, rocking, for kitchen work, for boudoir, and for leisure. Each individual may use many varieties of chair in a day (Fig. 145), the straight (a), Morris (b), heavy upholstered patent rocker (c), porch chair (d), willow (e), the small rocker, the hammock chair, and many more.

Comfort in these means adaptation in size and shape to the human body and its many postures. Thus a dining chair is intended for a rectangular position and will be comfortable if the seat is as high as the leg from the knee down, if greater than this one must sit too far forward or let the feet dangle. If the height is less, one's thighs are not supported. There is quite a range of comfortable adaptation, however, so that both short and tall people are reasonably comfortable in chairs of uniform size; 18 inches, as a maximum height does quite well, although many people would be more comfortable with an inch either more or less.

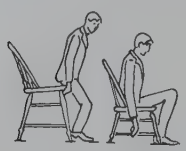


Fig. 146. A chair too high and a chair too low, showing the physical discomfort which each causes.

The depth of seat from front to rear is often too little in theatres and too great in the largest lounging chairs. A person 5 feet 8 inches tall, when sitting erect may use 19 inches, although by tilting the pelvis a greater distance can be reached, while a much greater distance, as even 22 inches, proves very uncomfortable and requires correction by placing a pillow behind the small of the back.

An arm chair demands consideration of the height at which it is comfortable to rest one's elbow, which is about 7 inches above the seat. The elbow by swinging outward and forward, however, has a wide range of adjustment.

The angle of seat and back is very important. Even the most rigid of dining chairs has a "rake," that is, the top of the back is placed about 4 inches back of the seat, and 17 inches above it. This gives support to the back just at the tip of the shoulder blades. The object of this slant to the back is to throw the center of gravity of the thorax above the supporting spinal column which is against the chair in the small of the back. If the back slants more the seat should slant also to overcome the tendency to slide forward. The Morris chair with adjustable back slope is good

as far as it goes but should have the slope of the seat adjustable also.

The writer has a chair built to order after careful study made by sitting on an apparatus of two boards hinged together and adjustable at various angles and heights. The resulting chair is shown in Figure 147. The seat and back are made of leather nailed along the four sides of the frame.

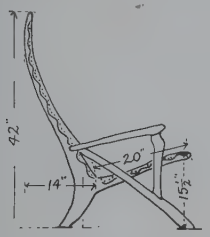


Fig. 147. A very easy reading chair which supports the body from the knees to the head and places the weight of the thorax above the small of the back.

It is a very easy chair to sit in for reading or writing on a tablet held in the lap, but is not comfortable for all kinds of work.

Many upholstered chairs are uncomfortable because they give no support to the inner angle of the knee, or have not the proper tilt. The "cobbler" seat recognizes this difficulty and overcomes the tendency to slide forward, but it is not a cushion. Sometimes we see enormous chairs, as if comfort increased with size, but a reasonably accurate fit is most comfortable in chairs as well as in shoes, and sizes made for people nine feet tall are uncomfortable for the rest of us. The comfortable chair gives support all along the body from knees to shoulders and has seat and back at such an angle that there is no tendency to slide.

The sizes of benches, davenports, and fixed seats of all sorts should, of course, be determined on the same principles as chairs.

Strength and durability: Chairs which are at the same time the lightest and most durable might be made of pressed steel riveted together or of wood for the main frame braced with wires like bicycle wheels, which wires could be tightened by turn buckles to take up shrinkage. We are accustomed to such construction on a large scale in roof and bridge trusses, but condemn it in chairs on account of the appearance. Diagonal bracing of wood in our chairs would make them last longer, but we shrink from this for the same reason. The diagonals are inharmonious with the architectural lines of the room.

Fig. 148. Illustrating the effect of diagonal bracing.

Let us understand the principle clearly: a person sitting in a chair and leaning back pushes a little, tending to make the chair collapse. This fault may be overcome by the use of braces (Fig. 148). The Windsor chairs (Fig. 149) used this brace in the back, and by spreading the legs very wide apart at the bottom they approximated the diagonal bracing principle.

Fig. 149. A Windsor chair.

For the most part we abjure diagonals in furniture and instead build on the principle of a spoke in a wooden wheel (Fig. 150). If we consider a single chair leg and drive a rung into it we may hang a weight on the end to test the resistance of the joint to bending. When the leverage is considered it is evident that the small joint can not support much, still if the chair

Fig. 150. The strength of a chair rung.

leg be thick, say 1¼", and the rung ½" and socketed firmly ¾" deep into the leg, it will hold perhaps 25 pounds. If a chair has many rungs, each will exert its share of stiffening, so that within the limits of the posts to receive rungs, the more of them there are the stronger the chair will be. The difficulty is that owing to the leverage a slight shrinkage of joint means a great wobbling of chair. Even though the wood may be perfectly seasoned when the chair is made, it is subject to swelling and shrinking with variations of moisture in the air. The smaller pieces will feel the effects of change more rapidly than the larger pieces, hence wood is not a perfect chair material. In spite of these imperfections, wooden chairs when carefully made do last for a lifetime. The disease which invades chair making is rapidity of assembling, at the expense of perfection of joint, and that disease invades manufacture in many lines.

This Sheraton arm chair (Fig. 151) looks very fragile; the wood of the arms is not only light but is even cross-grained, and yet so well were these chairs made that they have survived many generations. They are surprisingly strong.

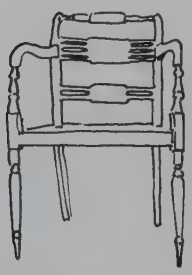


Fig. 151. A light but strong Sheraton chair.

The Windsor type when well made proved to be very durable. The slanting direction of spindles in the back and legs approximated to a truss action; and in the most thoroughly constructed specimens the spindles went clear through and were split and wedged like an axe handle in an axe head. Also the seat was very thick, enough so to afford a deep socket for legs and back spindles. This explains their survival (Fig. 149).

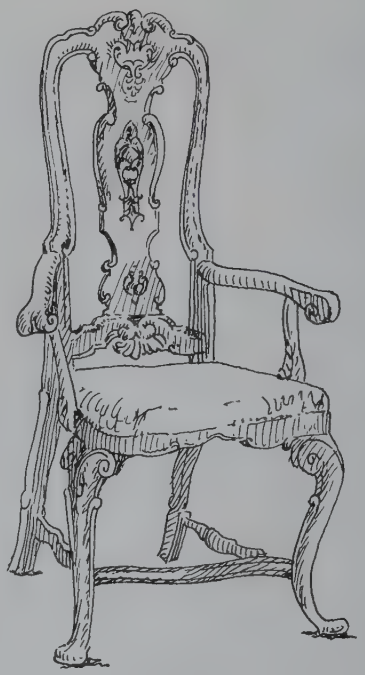


Fig. 152. A William and Mary "splat back" arm chair. A design which invites occupancy.

A chair should look well when occupied, and to an extent it should suggest occupancy and ease as does the William and Mary with the "S" back (Fig. 152). But chairs are much of the time empty and have indeed certain individuality and almost personality to maintain. Then their grace and distribution of ornament needs to be masterly. The difference between the design of a church and a chair is only in degree not in kind. The artists, Hepplewhite, Chippendale, Sheraton, and Adams Brothers, deserve the perpetuation of name

Fig. 153. A Charles I chair with unity in design on account of the rhythm upward.

which their works have given them. One would hardly claim perfection for the works of these men; the multiple requirements of utility, strength, the appropriate use of wood and aesthetic adaptation can not all be met simultaneously; either strength, utility, or beauty must suffer.

Consider the Charles I chair (Fig. 153). It is reasonably comfortable for use but is designed especially for its artistic expression. Its design "runs upward," from the wide and slightly flaring feet to the narrow back in which the long verticals predominate. A comparison of the richly carved broad slat beneath the seat with the similar but narrower and higher arch of the top slat, with its similar scrolls, is one index of this upward rhythm. The legs also both front and rear are in harmony with this tapering movement. This is a chair fit to be seen at all times and in almost any "period" room.

Figure 154 shows a chair with both Queen Anne and Flemish characteristics. It is unusually fine in its carving. Its strength depends upon a few well-made and heavy joints. These chairs sometimes had stretchers (rungs) between the legs, sometimes none. Consider (1) its usability. It is rather stiff, suitable for a dining chair or erect sitting. The carving is kept flat so as not

Fig. 154. A finely carved chair of Flemish inspiration in the museum of the Rhode Island School of Design. (Published by courtesy of the museum.)

to hurt the back or catch the clothing. The dusting would take extra care, but one who appreciates carving would enjoy the operation.

(2) Strength. The surplus of wood used in the legs makes them strong. Although not the most advantageous use of material it was doubtless considered by its designer to be strong enough for its purpose.

(3) Beauty. In the ease and grace of sweeping curves, and in the details of carving are found the most painstaking execution of the enraptured craftsman. Notice the modeling of the broad shield back, the details of the heads at the knees of the legs and the refinement of the lion's feet, the eagles' heads and claws. This carving has the extravagant faults of the Renaissance, it is true; the suggestion of ribbons holding the shield and wrapping about the side posts of the back violates good taste in the use of wood, but nevertheless it is a glorious chair.

With this slight suggestion, through the consideration of chairs, as to how furniture designing should be approached, the reader is urged to apply its principles to the consideration of other articles, such as tables, cabinets, and beds. The cuts of interiors which follow contain some examples worthy of study; the books mentioned at the beginning of this chapter are profuse in illustrations.

CHAPTER VIII.

INTERIOR DESIGN

The Room as a Whole

The chapter on floor plans necessarily covered much of the utilitarian function of individual rooms; the placing of doorways and control of passage routes. This chapter will deal chiefly with the art or beauty of the interior. Fine artistic training in composition will inevitably lead to "order" in the utilitarian sense, and conversely, a disposition of wall spaces which is not in harmony with the passage routes and axial planes indicated by the floor plan will produce a disorganized room, no matter how perfect each part may be in and for itself.

THREE MAIN IDEAS

The subject will be discussed under three main ideas as follows:

First Idea: "The room as a solid of three dimensions. Axial planes." The axes indicated in the floor carried up the walls. Maintenance of balance with reference to axes. Out of this idea spring "groupings."

Second Idea: "The architecture of the room." Cornice, base, window and door trim, mantels; the production of unity through emphatic and subordinate lines, masses, and proportions.

Third Idea: "The furniture, draperies, etc." To supplement the architecture or, if it is poor, to cover it up.

In carrying out these three ideas the fundamental principles of design apply: 1. A grasp of the scheme, a classification of parts into primary masses, secondary masses, etc. 2. Space divisions. Each side of the room forms a unit by itself to be arranged into a design of good proportions according to the principles of the "golden sector," the common unit, or the diminishing ratio, as was discussed in Chapter II. 3. Color. The general rule is that backgrounds, walls, and ceilings shall be nearly neutral; small parts may be more brilliant, the window hangings may have patterns which echo the whole scheme; that is, contain both the background and accent colors.

The usual practice is to make floors dark, side walls medium, ceilings lightest.

As a general principle, light, warm, and bright colors make walls and ceiling expand, while dark, dull, and cool colors make walls and ceiling contract. The first are stimulating and cheerful, the second quieting and restful.

The Room a Solid of Three Dimensions with Axial Planes

In designing, especially in placing the main features and in disposition of the fixed pieces of furniture, we should think of the room as having three dimensions, having axial planes about which the fixed pieces of furniture are arranged. Most rooms are symmetrical, balanced about two central vertical axial planes, one lengthwise, one crosswise of the room. Frequently

there are two transverse axes. An arrangement of rugs on the floor expresses or implies these planes, and leads us to expect the same axes to be used in the disposition of the end and side walls. Balance may be maintained without symmetry; an open portion of the room may balance an occupied portion, a piano may balance a couch, or a book case a radiator, etc. But the balance must be maintained if the room is to have a sense of orderly restfulness.

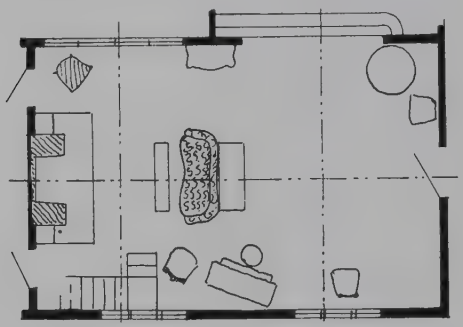


Fig. 155. Plan of the living room of the Onger house, Berkeley, Cal.

A single illustration of this idea is seen in Figure 155, in which the main axial plane is indicated on the plan by the fireplace, table, davenport, and the doorway; looking at the photograph (Fig. 162) it is seen that this axial plane is carried up the end wall by the fireplace and chimney, and it also determines the placing of the symmetrical doorways on both the first floor and the balcony. Looking again at the plan one finds two secondary transverse axes. One of these marks the stairway and a window panel; the other marks a window panel and the arched opening to the dining room.

The Architectural Treatment of Cornices, Casings, and Trim

These are the materials of the architectural expression with which the designer marks off the space divisions which are agreeable. In Figure 156 the wainscot height with the wall space above it is in proportion of the "golden sector"—5 to 8; also the door width is five-eighths of the panel width from door to corner, and the space between the doors is double the end spaces, an instance of a common unit. In Figure 157 are found opposing rectangles; the windows have their greatest length vertical in opposition to the horizontal of the room side.

The mantel in turn opposes the vertical windows with horizontal rectangles. In color, the curtains with their vertical lines form the emphatic note of the room. The ceiling molding forms the most emphatic architectural line. In Figure 158 the central panel containing the mantel projects forward and is further predominant over the side panels by a slightly greater width. Figure 159 shows a method of designing with un-

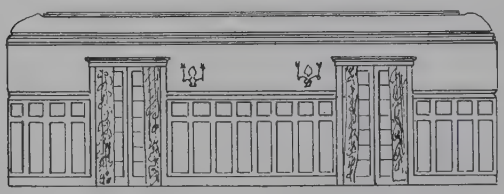


Fig. 156. Wall paneling, illustrating various rectangles of the "Golden Sector."

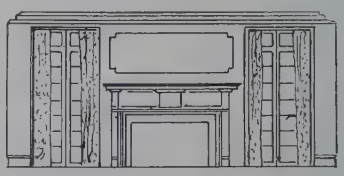


Fig. 157. Wall spacing, illustrating rectangles with opposed major axes.

equal spacing. The larger opening has the larger part of the space, the smaller opening occupies the center of the remaining space; the picture molding is so placed as to give the upper portion of the wall space a commensurable ratio of the lower space; this may be one-half, one-third, five-eighths, or otherwise, but the intention is clearly to

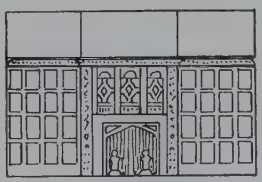


Fig. 158. A room end with the predominant feature a projecting central panel.

Fig. 159. The side of a room containing a window and door in occult balance.

compare the two. In such a room the lower portion of the wall is almost invariably darker in color than the upper; similar division is given in 156 and 158.

Figure 160 shows a few contours of ceiling moldings. Note that they are designed to give deep shadows in the hollows.

Fig. 160. Contours of ceiling moldings. The shape of the section determines the depth of the shadows.

General Remarks on Door and Window Casings and Draperies

Figure 161 shows typical treatment of doors: (*a*) is a modest Colonial type of elegant proportions; (*b*) is very simple; (*c*) is also a Colonial casing of effective beauty. The windows of the rooms containing these doorways would, of course, be treated with the same trim; (*a*) should be draped only within the casings themselves, as indeed they were in the Colonial period; (*b*) could be draped by covering the casings entirely (as is done in Figures 168 and 172); (*c*) and (*d*) should be draped only below the caps; Figure 173 violates this. See how much better the architectural purpose of the designer appears in the door opening of the same room, which is undraped, than in the windows in which the curtain rod is placed too high. Otherwise the drapes are well used in this attractive interior.

The valance or lambrequin by carry-

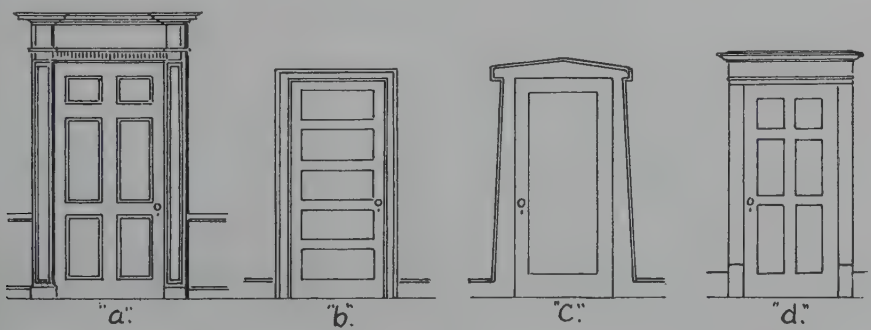


Fig. 161. Types of door casings. (Window casings in the same rooms would be similar.)

Fig. 162. View in the living room of the Onger house, Berkeley, Cal. The principle of the "Axial Planes" is well recognized in this room, both in the architecture and in the placing of the furniture. (Plan of the room, Fig. 155.)

ing the color of the side drapes across the window makes them effective as forceful areas in the side walls rather than as mere vertical lines, but this often cuts out the part of the window which best distributes the light into the distant parts of the room (Figs. 168 and 172).

Placing small articles: Vases, lamps, and similar articles are more important in the design of the room than their size would indicate, because they project into solid space, as doors and windows do not. In designing a room due allowance must be given to the extra force of such objects, especially if they are "off axis."

Interior—Individual Rooms

Having now discussed the three ideas in interior treatment: the consideration of the room as a solid with axial planes, the architectural treatment of cornices and casings, and the furnishings, we will take up some individual rooms and see how these ideas may be made more concrete.

The Onger room of photo 162. (This has already been mentioned in definition of the axial planes, Fig. 155, p. 98.) The sloping ceiling accents the central axial plane. In balance as a solid we find the room divided into two portions, the table and davenport making the division between the more intimate or

family portion about the hearth and the more open or reception portion near the entrance. The fact that one portion is larger than the other affects the dignity of the design not at all.

In architecture of the room the predominant character is given by the beamed ceiling. Hardly less striking is the paneled balcony across the end, with the stairway leading to it, while of perhaps greater visual force is the rough brick chimney with its pyramidal lines. The bold decision of these sloping lines gives them force. The method by which the dining room is subordinated to this main room should be noted; the archway drops below the main cornice line, the ceiling of the smaller mass is lower, and also the floor is down two or three steps, but the important thing is that the opening is contracted well within the boundaries of the side of the main room.

The furnishings: The draperies are moderately brilliant figured cretonnes, the window hangings and the davenport maintaining a balanced distribution of patterned decorations. The very beautiful table, which is of Chinese manufacture, an "altar table," recalls the finish and design which must have inspired the Chinese Chippendale a hundred and fifty years ago. Its frankness of construction and richness of carving are superb. The Colonial table of Empire inspiration which stands, with fine designer's instinct on the median transverse axial plane, is a very perfect example; on the wall above it is a beautiful bowl; opposite this is a piano, which does not show in the photo. On the center table is a reading lamp with rich reddish brown ox-blood glaze. On the mantel is a fine candelabra, and at the right a large reading lamp with very beautiful hand-wrought standard. The large arm chair is of Sheraton derivation, while the dining table is an Adam,

Fig. 163. View in the living room of the L. L. Hotchkiss house, Berkeley, Cal. (Plan of the house, Plate II, No. 109. Exterior of the house, Fig. 115.) Stafford Jory, architect.

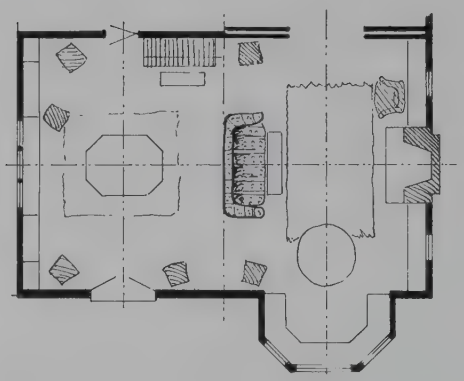


Fig. 164. Plan of the living room of the Hotchkiss house.

and the dining room chairs partake of both Sheraton and Chippendale character. The small chairs in the main room are: one a "fiddle back," but with some Empire lines, and the other with certain Hepplewhite characteristics. Altogether the room is very attractive and unique.

The living room of the Hotchkiss house (Figs. 163 and 164).

This is a combined living and dining room, divided into two parts by the placing of a davenport. The main axial plane cuts the sideboard alcove in one end and the fireplace in the other. There are two transverse axes: one terminates in the window bay at one end and in the entrance door at the other, crossing the round table in its course; the lesser transverse axis crosses the dining table and a French door to a terrace on the side wall at one end, and the door to the pantry on the opposite wall. Note that the bay window alcove is kept subordinate to the main room by a lower ceiling. This is quite essential if the dignity and predominance of the main mass is to be maintained. The chairs of Empire style are noticeable.

Living room in the Grosh house (Figs. 165, 166, and 167).

1. The axes are well marked by the symmetrical windows, by the fireplace and davenport opposite it.

2. The dominant architectural feature is the fireplace of well-proportioned Colonial type. The mantel is one-third the width of the room; the mantel height and width are in proportion of 5 to 8, the "golden sector." The height of mantel and space above it also form the same proportion, 5 to 8. The dominant architectural line is the ceiling molding; the base, also, is wide enough to make, in comparison with the other wall spaces, an area, rather than a mere line.

3. The room was partially dismantled when the photograph was taken, but one may see how the accents of color were distributed by the window drapes, the upholstered chairs and rugs. The two floor lamps give the climax of color notes. The Spinet desk is charming as well as the Empire chair beside it.

Fig. 166. Elevation of the side wall in the living room of the Grosh house.

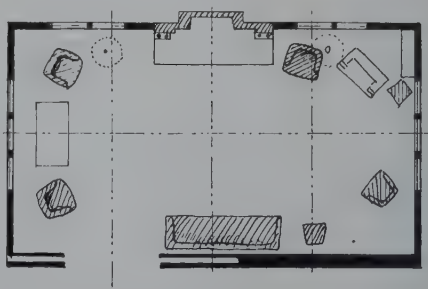


Fig. 167. Plan of the living room in the Grosh house.

Fig. 165. View in the living room of the William J. Grosh house, San Jose, Cal. (Exterior, Fig. 43.)

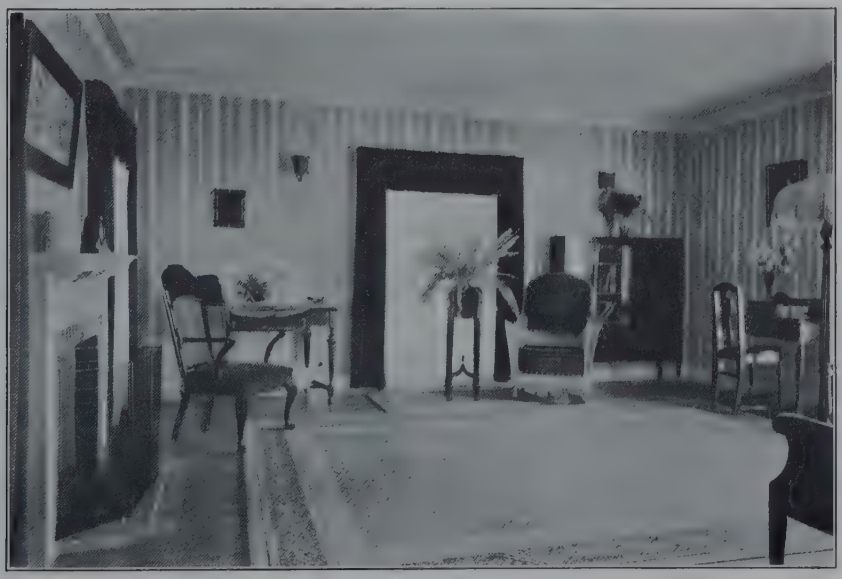


Fig. 168. The living room in a house in "Thousand Oaks," Berkeley, Cal.

Fig. 169. Elevation of room in Fig. 168.

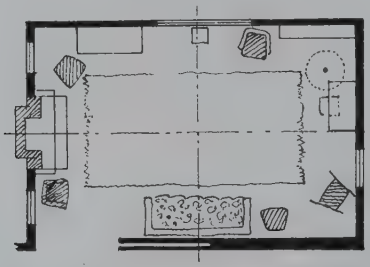


Fig. 170. Plan of the room in the house at "Thousand Oaks."

An interior in "One Thousand Oaks," Berkeley, Cal. (Figs. 168, 169, 170).

1. One axis is marked by the fireplace and rug, but the opposite wall has a balanced rather than symmetrical design. The other axis is marked by the window with its fern stand, by the rug and by the davenport.

2. The ceiling line is very modest, the casings are concealed by the drapes, the fireplace is the outstanding architectural feature of the room.

3. The dark wine-colored window curtains are effective accents in the design. The striped wall paper with its two colors is very pleasing. The furniture shows the inexpensive type of William and Mary, which, at the time of present writing, has supplanted the

Fig. 171. Interior, residence of R. D. Leland, San Jose, Cal. (Plan, Plate II, No. 116.) Andrew P. Hill, Jr., architect.

Fig. 172. View in the living room of Professor Clifford Allen's house, Stanford University, Cal. John K. Branner, architect. (Floor plans, Plate III, Nos. 123 and 124.)

"Mission" in low-priced use. The pictures are well placed to attain balance.

An interior in the Leland house, San Jose, Cal. (Fig. 171).

1. One axis is well marked by the fireplace, the rug, and the davenport.

2. The architectural feature is the wide ceiling molding which gives weight at the top of the room to balance the effect of the furniture on the floor. The treatment of the mantel and adjoining book cases with one comprehensive horizontal line gives a fine sense of unity and repose.

Endless puzzles in arrangement are occasioned in hanging pictures. Figure 173 shows the skillful way in which a large picture on one side of a window is balanced by two smaller ones on the opposite side. The horizontal lines of the larger picture determine the horizontal extremes between which the two smaller pictures are placed.

The following photographs of interiors are given without comment, for the reader to study at his pleasure, in application of the principles above set forth.

Fig. 173. View in the living room of the Robert F. Tremaine house, San Jose, Cal. Andrew P. Hill, Jr., architect. The two pictures on one side of the window balance one picture on the other side by making the extreme top line and the extreme bottom line the same for both sides.

Fig. 174. View in the living room of the D. A. Mendenhall house, Palo Alto, Cal. Chas. W. McCall, architect. The furnishings are Louis XVI. (The kitchen arrangements and plans are shown in Figs. 141-144.)

Fig. 175. View in the living room of the Markham house, Berkeley, Cal. (Floor plans, Plate III, Nos. 118 and 119.) The Empire chair and the Adam table are noteworthy.

Fig. 176. View in the living room of the H. Clay Miller house, Palo Alto, Cal. Loring Rixford, architect. (Floor plans, Plate III, Nos. 125 and 126.)

Fig. 177. View in the living room of Professor Payson J. Treat's house, Stanford University, Cal. John K. Branner, architect. (Plan of the house, Plate III, No. 127.)

Fig. 178. View in the living room of Dr. Jerome Thomas's house, Palo Alto, Cal. (Floor plan, Plate III, No. 129. Mrs. Thomas, designer.)

CHAPTER IX.

CITY PLANNING AND GARDEN CITIES

All progressive cities have "City Plans," which are merely methods of looking ahead and providing for growth and development in such a way that improvements, both in public and private building, will be an orderly unfolding of unified schemes, the cities becoming more and more complete and beautiful with the minimum of tearing down and rebuilding.

The subject of city planning is a complete profession in itself, and only the briefest résumé of its theory and operations can be given here.

The main divisions of its work are: zoning, transportation, streets, parks, and playgrounds, civic architecture and civic centers, and garden cities.

I. ZONING

Zoning is one fundamental step of wise city planning. It is fully explained in the *American City Magazine,* Vol. 19, pp. 3–9, and in "Procedure for Zoning or Districting of Cities" (cited below). This means the defining of city zones for the exclusive accommodation of certain classes of use. The number of zones may vary in different cities according to the city's size and character. The most fundamental division sets apart the residence section from all others.

The zoning of a portion of the city of St. Louis gives six zones:

First Residence District (for houses of one family only).
Second Residence District (permitting tenements, apartments, and hotels).
Commercial District.
Industrial District.
Unrestricted District.
Parks and playgrounds.

Usually the area of a lot which may be covered by a building is defined in accordance with the zone. In residence zones a certain amount of clear area in front, at the sides, and at the rear, is demanded. Also the heights of buildings are limited. One frequent idea is that in business districts heights should be uniform, but another idea is to permit a certain area of each block to have "sky scrapers." This may permit sufficient amounts of air and light to reach all buildings and may result in a beautiful city if a whole block is planned at one time under one control. Without this condition the uniform height is probably the safest method of securing a beautiful city.

Industrial districts are again divided into zones for ordinary manufacturing and zones for nuisances (as laundries and glue factories).

Good planning not only protects residences from factories, but also reserves the space which factories need for growth. The homes of workers must be near industries and may be secured by developing industrial resident areas near factory sites, preferably on the side least exposed to winds bearing smoke, and also prescribing the type of building permitted. Precautions are exercised to ensure against over-crowding.

There is but one power now strong enough to carry out a comprehensive city planning scheme if this involves the correction of previous mistakes and consequently some destruction of existing property. This power is a *generally enlightened public opinion,* with an understanding of benefits to be attained. Formerly kings and princes were able to do what they wished. This is the reason that Paris has her gigantic boulevard system, and Vienna her beauty, although the building of these caused the destruction of much property. Chicago has a comprehensive city plan which is set forth in a manual for use in the public schools, that the coming generation may realize its desirability and carry out its provisions. Dr. Werner Hegemann gives the following as the order in which different measures should be given consideration:

1. Transportation by water.
2. Transportation by rail, both of people and freight.
3. Streets: main traffic, business, residential.
4. Parks and playgrounds.
5. Civic art and civic centers.
(And we might add suburban garden cities.)

II. TRANSPORTATION

The development of water transportation and its economy is a matter better appreciated in Europe than in this country. Enormous sums are expended in such countries as Holland, Belgium, and Germany to develop elaborate docking systems for inland towns which are reached only by rivers or canals. See the "Planning of the Modern City," pp. 58, 59, 60, for a portion of the docking systems of Hamburg and Duisburg-Rurhrot, the latter "probably the greatest inland port of the world," although 135 miles inland. The waterways and railroads should interlock, like one's two hands brought together with the fingers spread apart, so that factories may have water on one side and a railroad on the other.

Railroad Transportation. The railways entering a city like Chicago need careful planning in order to avoid hopeless confusion. (See Wacker's Plan of Chicago, p. 100, or Lewis, pp. 69 and 71.) The Chicago plan provides for a great switching yard outside of the city for sorting freight, so that only that which is designed for the city shall enter it. The passenger stations are likewise to be further consolidated and connected by elevated service. The Grand Central Terminal in New York contains seven levels of travel. (See Lewis, p. 67.)

In large cities a municipally owned belt line distributes freight cars regularly like mail at a fixed charge per car.

In any city the beauty of the avenues leading from railway stations to the residence and retail business districts is very important.

III. STREETS

The street system is the key to the beauty of a city as well as to the speed and ease with which one can transact business in it.

The ideal system of streets considers: First, established centers of the city life—shopping, commercial, manufacturing, residence, recreation—also the approaches to the city, and then connects these centers with direct routes. The result will be a series of large, irregular triangles, and in many small sections rectangular systems of subdivision. Paris, while it is not perfection in itself, nor as a pattern to be followed by another city, is still the best known example of the ends to be at-

Fig. 179. Map of a portion of Paris, showing the diagonal street system. The inset shows the main boulevards of the whole city within the fortifications. The Avenue des Champs Elysées is the broad horizontal line near the center.

tained in city planning (Fig. 179). In Paris one is never lost, because at the ends of the various main streets or boulevards are monuments of one kind or another which one easily recognizes: the Opera House, the Arc de Triomphe, Napoleon's Tomb, the Trocadero, the Cathedral, and numerous other buildings, fountains, or groups of statuary which accent important turnings and which identify the part of the city in which they are placed as devoted to certain classes of business or pleasure. The streets are so arranged that at the important intersections objects of beauty command the street, and this in itself is an important element in the city's charm. The main boulevards form a net-work of wide arteries, which covers the city and by means of which one may go almost in straight lines from point to point. There are in Paris many narrow streets and blind alleys, but these are advantageous and give seclusion where seclusion is desirable.

The fact that a stranger can not in the first hour grasp the scheme of the street system and find unaided a given address, as he could in a rectangular city with streets named A, B, C, and D in one direction, and 1, 2, 3, and 4 in the other, should not condemn the system. The joy and convenience which one ultimately derives from a city plan is the

Fig. 180. View in the city of Liege, France. Illustrating personality or individuality in a city view. Note the double row of trees marking the street as it leaves the square, and also the wooded park.

Fig. 181. View in Paris, looking down the Avenue des Champs Elysées, from the Arc de Triomphe. Note the many lanes of travel and the trees.

final test of its value, and not the experiences of the first hour. For more than a century Paris has demonstrated its power to exercise a lasting charm. A street system for a large city should have its streets so arranged as to divert traffic from passing through one center. Paris does this by the boulevard system—having several radiating points in its circle of boulevards instead of only one. Small cities may run a small square of wide boulevards about their commercial centers.

Street widths. The main arteries should be wide. The Avenue des Champs Elysées of Paris is 260 feet; Upper Broadway, New York, 150 feet; Commonwealth Avenue, Boston, 200 feet; Market Street, San Francisco, 100 feet—and very inadequate. These widths are not too great for the traffic in the main arteries of large cities; most cities all over the country are now suffering from too narrow streets in business areas. The best results, however, are obtained by subdividing wide streets into traffic lanes separated by planting strips; street cars, and even elevated railways are less objectionable under such circumstances. Look at the trees in the city of Liège (Fig. 180), or of Paris (Fig. 181), and realize what charm and convenience most of our American cities are losing through lack of foresight in laying out their main streets.

Dr. Hegemann recommends for the main traffic streets of Oakland and Berkeley, outside of business districts, a width of 100 feet divided as shown in Figure 182*f*.

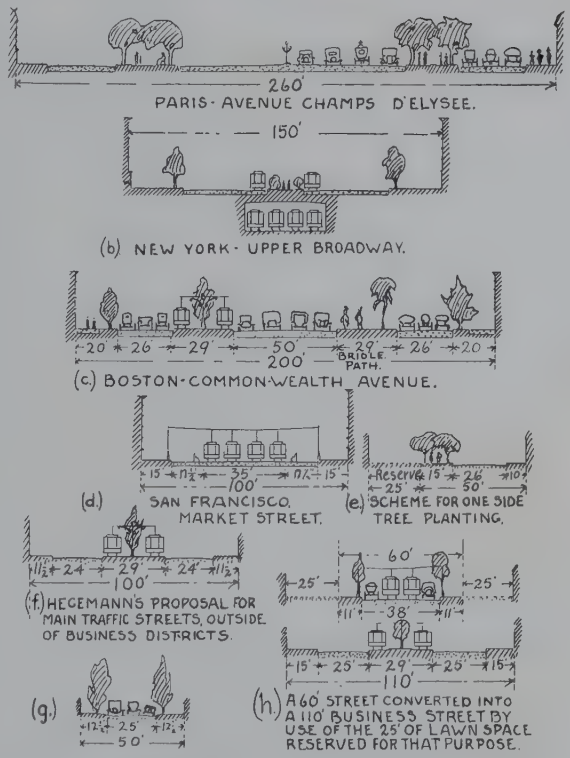

260
PARIS · AVENUE CHAMPS D'ELYSEE.
150'
(b) NEW YORK · UPPER BROADWAY.
20 26 29 50' 29 26 20
200'
BRIDLE PATH.
(c) BOSTON · COMMONWEALTH AVENUE.
15 11½ 35 11½ 15
100'
(d) SAN FRANCISCO. MARKET STREET.
Reserve 15 26 10
25' 50'
(e) SCHEME FOR ONE SIDE TREE PLANTING.
11½ 24 29 24 11½
100'
(f) HEGEMANN'S PROPOSAL FOR MAIN TRAFFIC STREETS, OUTSIDE OF BUSINESS DISTRICTS.
60'
25' 25'
11' 38' 11'
15 25 29 25 15
110'
(g.)
12½ 25' 12½
50'
(h.) A 60' STREET CONVERTED INTO A 110' BUSINESS STREET BY USE OF THE 25' OF LAWN SPACE RESERVED FOR THAT PURPOSE.

Fig. 182. Street sections of many widths from many cities. (Note that they are drawn to a uniform scale for comparison of widths.)

The advantage of raising car tracks slightly above the street level on such streets is obvious. This permits the practice followed in many cities of maintaining lawn instead of paving between and at the sides of the rails.

Another important consideration regarding main streets is that of providing for their best present beauty as modest residence streets and for their future use as business streets. Suppose we have a present street of 60 feet, with 28 feet of paving, which is ample for through traffic. This leaves 16 feet on each side for sidewalk and planting. Suppose residences are compelled to

keep back 25 feet from the street line, it being understood that when the City Council determines it to be for the public good this 25 feet shall be used as street. When this reserve space is used the street will be 110 feet wide, and of course when conditions make the increased width desirable the property will have greatly increased value for business purposes (Fig. 182*h*). Meanwhile the expense of maintenance is only that of a paving 28 feet wide. The principle may be applied to a narrower street as well. In the case of residence streets, serving only the traffic of one or two blocks, 40 feet for both sidewalks and vehicles is ample, and with the building lines kept back 25 feet an ultimate space of 90 feet is preserved. Some English garden cities have only 20 feet of walk and driveway in "one end" streets. In such cases it is best to plant trees inside of the sidewalk, and in some cities the planting space is all on one side of the street, the roadway being at one side of the center, Fig. 182*a*).

The residence built in an acre or more of ground can secure its own privacy from traffic on the streets, but for smaller lots it is desirable that things be done to prevent much travel in the street.

This is sometimes done by the "court" system (Fig. 183); again, by the blind street or "one end" street, or simply by making the streets narrow and crooked. This last plan results in picturesque vistas. Let us imagine the grounds of a private residence on a hilly lot of some four acres, with winding drives and paths and well planted with trees and shrubbery. If, now, we abolish the one residence and place in the ground six- and eight-room houses about fifty feet apart, leaving some spaces open and unoccupied, we will have placed perhaps eighteen or more houses in the space of one (Fig. 183). The street is then available for play space, as it is in private grounds. This arrangement preserves the external beauty of the large private yard, and, while the eighteen residences do not have the privacy of the former, they have enormous advantages over the crowded city flat. Some such division is seen in Figure 117, page 59, Japanesque houses, Los Angeles.

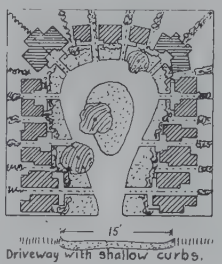


Fig. 183. A scheme for placing nineteen houses on a four-acre lot and preserving one wide dooryard.

IV. PARKS AND PLAYGROUNDS

1. The larger the city the greater is its isolation from the open country and its need of parks; hence the need of anticipating and purchasing land by the city far ahead and paying for its upkeep by its lease for agricultural purposes.

2. Industrial residence sections need playgrounds and parks more than the other sections. They need other educational agencies as well. The Tate Gallery of Modern British Art was deliberately placed in the poorer residence section of London for a wise purpose.

3. Large parks kept in almost their natural state, with informal baseball and other athletic grounds, are more satisfactory than the exciting night cities of roller coasters and grotesque extravagancies. Joseph Pennell says, "We are blind and fools and furthermore we are so debauched and our children are so blinded by the comics and movies

that we as a nation are artistically rotten."

In a Chicago park one finds the sign, "Walk on the grass; do not make paths," and many cities have discovered that sheep are the best lawn mowers. This is all in the interest of "natural" out-of-doors life. Of course small parks in business parts of the city require some formal treatment, with protection for grass, and children's playgrounds require swings, coasters, and other accessories. But in addition to these are needed coasting hills, skating ponds, and natural paths through forests.

4. Distribution of parks or creation of park systems. This means the connection of all the parks of a city in a continuous chain. This chain may sometimes be narrow or only a wide parked boulevard. This idea of connection is to afford comprehensive drives.

Another important matter is the distribution of playgrounds throughout the city so that every residence is reached within a reasonable walking distance. Doctor Hegemann, in the Oakland and Berkeley Report, gives a map showing what areas are served by school grounds and other playgrounds. His map shows dots of one-quarter mile circles, the distance which small children will walk; and dots of one-half mile circles, the distance which larger children and adults will walk readily to a community playground. A similar map for many cities would look like a sidewalk on which a few large drops of rain have fallen, with several dry areas between.

The Paris boulevards are virtual parks and playgrounds, provided with benches and wide playing spaces for children.

V. Civic Architecture and Civic Centers

The purpose of these is two-fold: First, to make convenient offices for the administration of the city; second, to give expression to the city's consciousness of existence, to give it a countenance or personality—a matter of utmost importance.

The civic center and the streets leading to it should form the axis or backbone of the city design, and as such must have ample space.

City Hall, Auditorium, and Library are the buildings which one expects to find grouped here. The village "Green" or "Square" of New England, with the schoolhouse and churches in addition to the above buildings, well served the purpose of expressing community consciousness. The person is to be pitied whose life is spent in a city or village without a civic center which expresses the community life. The view of Liège (Fig. 180, p. 112) is typical of thousands of European cities which have enduring character in expression of individuality. Venice, Rome, and Pisa resulted from civic planning. Are Americans satisfied to plan for less noble cities than the citizens of Italy enjoyed? One finds the civic centers, actual or proposed, of Cleveland, San Francisco, and Philadelphia illustrated in "The Planning of the Modern City," opposite pages 163, 166, and 174, respectively.

VI. Residence Tracts and Garden Cities

The words "residence tracts" recall such garden cities as are found at Letchworth and Port Sunlight, England; Forest Hills Gardens on Long Island, N. Y.; the modern residence tracts on the sloping east shores of San

Fig. 184. Map showing El Cerrito Park, San Mateo Park, and part of Burlingame Park, high-class "Garden City" residence tracts of San Mateo County, Cal. (Copyrighted by D. Bromfield, surveyor. By permission of Mr. Bromfield.)

Francisco Bay — Oakland, Piedmont, Claremont, and Berkeley; St. Francis Wood and Forest Hills, in San Francisco; and the residence parks south of San Francisco, near San Mateo and Burlingame. Fortunately this does not exhaust the list of real estate projects in the United States which are conducted on an enlightened plan. Southern California, Maryland, Massachusetts, Indiana, and many other states have also made, in some favored spots, worthy demonstrations of what the modern village of homes may be.

The characteristics which one recalls most readily in these towns are probably the winding streets following natural gradients and turnings, and well planted and cared-for door yards. To quote from Mark Daniels, writing in *Homes and Grounds*, March, 1916, "The curbs must be so laid as to permit the modern automobile to take curves comfortably, and at the same time their grades must be such as to present no objectionable features, in the form of high and precipitous banks at the lot frontages," and we may add, the vistas along the streets need to secure and retain as far as possible the grandeur of the unoccupied site.

"El Cerrito Park" in San Mateo was one of the earliest tracts to be laid out and developed with wise artistic judgment and foresight. Its manager was Mr. Henry P. Bowie.

It has rolling ground over which the main street arteries sweep in natural lines, giving a great variety in shape and size of the different blocks, and yet permitting a reasonable similarity among the lots of each region. Some of the larger holdings were already built upon when the tract was divided. Following the map (the right-hand third of Fig. 184) one may notice that one edge of the tract is on "El Camino Real," the main state highway from San Francisco to Los Angeles. Three main avenues lead from this highway back and upward through the tract; these are Santa Inez, San Mateo, and Baywood Avenues. Roblar and Vancouver Avenues supplement and connect the first two, while a few other short roads are placed where crossings are needed. Even if the tract were level the streets would result in beauty, as the tract is well wooded, the curve in the streets is sufficient to avoid the mechanical monotony of straight avenues, and still afford long vistas; but to appreciate their placing fully one needs to consider the rolling character of the surface. (It is best, of course, to pass over the tract, map in hand.) The depth is a little over a mile, and the extreme rise about 200 feet; Santa Inez Avenue leaves the Camino Real by a short rise and stays on high land, rising more rapidly still toward the back of the tract. The creek on the map indicates a winding valley; the polo field is a portion of a wide flat area; a steep hill or mound, "El Cerrito," is at the bottom; another wide sloping knoll is bounded by Edgehill and Medway Roads; "Uplands" is on high ground, as is also the George Howard residence at the left. From this description one may picture the surface of the tract and better appreciate its street system.

The "gridiron" system of streets would have taken more land because cross streets would have been more numerous. The idea that the extra number of corner lots so created would be a recompense is not sound, because the inside lots are sufficiently large to re-

quire no extra air. The mark of genius indicated in the development of the actual street system used in El Cerrito rests upon the fact that it expresses the tract; each avenue has character, a reason for its individual placing and windings, and forms the most direct means of going where one wishes to go, cross streets being kept at a minimum. The gridiron system would have taken more land and would not have afforded the great variety of individual holdings of unique advantage. One has but to look at many subdivisions on similar ground surfaces where the gridiron system is used in order to be convinced. And yet men who must have seen this or similar tracts have since used the gridiron system in residence subdivision. Why? This is the reason: customs breed and multiply like plants or animals. The human brain is merely a soil in which ideas are sown. The great majority of brains will sprout and mature indiscriminately every kind of seed which falls in them, and seeds of the "gridiron plan" are more numerous than other kinds. The gridiron plan can easily be thought out on a drafting board with a T square, while to draft winding streets needs a cultivated eye, a free-hand pencil, and creative skill in study of the individual problem. But the chief obstacle is the inability of the human brain to weed out numerous "gridiron" ideas.

San Mateo Park, which adjoins El Cerrito (Fig. 184), also has a fine rolling surface and is a beautiful tract, well built up with attractive houses and grounds. It is better than the straight-line gridiron system, but it lacks the character as a whole given by the fundamental trunk line avenues of El Cerrito. Burlingame Park in its upper part has excellent streets which are all that could be desired and serve large, wealthy estates. It must be remembered that merely curving the streets is not enough; the curves must have a purpose.

St. Francis Wood is a residence tract of San Francisco, the successful result of splendid vision and skill. The plan is shown in Figure 185. The lay of the land may be realized by noting that the railroad from St. Francis Circle (1) to the portal of the tunnel is nearly level. The ground slopes back to St. Francis Park (8) which is quite high, the grade being about five per cent. The terrace gardens (9) and (10) lie in a valley with rolling but rather steep slopes.

The beauty of this tract is due to four things: (1) the far-sighted and lavish manner in which it was planned; (2) the complete way in which the details of street building with curbings, side-

Fig. 185. Map of St. Francis Wood, San Francisco, Cal. (By permission of the Mason-McDuffie Co., owners and developers of the tract.)

Fig. 186. A view in Forest Hill, San Francisco, Cal. (By permission of the Newell-Murdock Co., developers of the tract.)

walks, and planting were carried out; (3) the beauty of the entrance gateways and fountains; (4) the maintenance of high standards of beauty in the architecture of the houses, which nevertheless are modest rather than pretentious in character.

Forest Hill, also in San Francisco, presented greater difficulties in its planning than either St. Francis Wood or El Cerrito Park, because of the steepness of its wooded hills, and yet its engineer, Mr. Mark Daniels, has made its streets beautiful with fine vistas and easy curves and grades. The terraced street is developed here in all its perfection; that is, a street with two levels, a high side and a low side, separated by a terrace or retaining wall running through its center. The sidewalks also are terraced, above or below the street level, when by so doing ugly cutting is avoided (Fig. 188). An article on this park, written by Mr. Daniels, is found in *Homes and Grounds* for March, 1916. In it he says: "Some

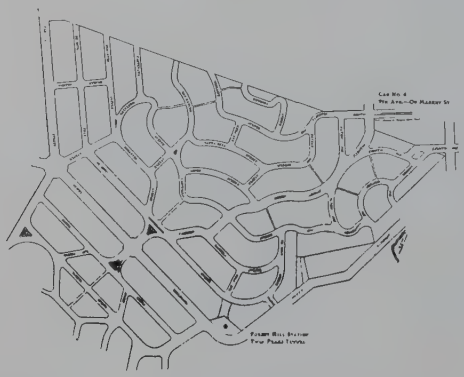


Fig. 187. Map of Forest Hill, San Francisco, Cal. (By courtesy of Newell & Murdock.) This tract lies on quite large steep hills, but the streets have been laid out with easy curves and grades, and an avoidance of deep cuttings and unsightly banks.

Fig. 188. View in Forest Hill, showing a "two-level" street, to avoid deep cutting on the upper bank. (By courtesy of the Newell-Murdock Co.)

criticism has been made of the fact that the streets are winding and misleading to a stranger. It may be noted, however, that no such criticism is offered by residents of the park. The plan" (Fig. 187) "calls for two through arteries traversing the property substantially at right angles. These arteries are comparatively straight and laid on easy gradients. The secondary streets are more winding, thereby attaining picturesqueness" (and discouraging rapid traffic). "The winding streets are soon learned and, if properly signed, need give no trouble to occasional visitors." One can not but think of what a beautiful city San Francisco would have been if the early settlers had laid out its main streets along its main water or drainage courses, winding naturally up its many hills. It could have been the most wonderful city of the world. Much of California is still unspoiled, many of her cities but just begun, and we can only hope that the best methods will prevail as they are developed and enlarged.

Forest Hill Gardens, close to New York City on Long Island, was one of

the earliest garden cities of this country, established by the bounty or enterprise of Mrs. Russell Sage. The streets and planting were designed by Frederick Law Olmstead, landscape architect, and the architectural features were designed or directed by Grosvenor Atterbury, architect. The railway is elevated on a high earthen bank to avoid grade crossings, and one alights from the train into a picturesque station, from which one looks down into a public square which is completely surrounded by buildings (Fig. 190). Among these buildings is a picturesque inn with a tall tower, and at the sidewalk level are enough stores to supply the village needs. The exits from the square are made under broad archways. The view from the Tower along the main axis of the tract is seen in Figure 191. Its plan is shown in Figure 192.

Fig. 189. The terrace at south entrance, Forest Hill. (By courtesy of the Newell-Murdock Co.)

The tract contains parks and athletic grounds; its tennis grounds contain 65 courts. Some blocks have neighborhood parks in their centers. Many houses are built in groups. A group of several is shown in Figure 191, while four is a more frequent number, as shown in Figure 193. These four face a common yard. The advantage of four houses with one yard is that each can enjoy four times the area of yard which each could have on the usual sep-

Fig. 190. View in Forest Hill Gardens, N. Y. Looking toward the station square and tower of the Inn. The tract was developed by the Sage Foundation Homes Company.

Fig. 191. Forest Hill Gardens, N. Y. Looking east from the tower of the Inn.

Fig. 192. Map of Forest Hill Gardens, Long Island, N. Y.

arate plan. Figure 193 shows a residence street designed to serve a small group of houses and to discourage through traffic. It also shows the type of street-light post and street signs used in the tract.

Figure 194 shows a street narrowed to utilize an out-cropping of rocks which must have appeared only when the street was being graded. Notice that the driveway is not placed in the center between sidewalks, but swerves diagonally along the block. This is evidently the work of some artistic foreman "on the job" and using taste, an example of what will always be done when the next "golden age" in art arrives.

Figure 195 shows a street of beauty in Kew Gardens, Long Island.

In all of the above and similar tracts the architectural success depends in a degree upon a unified control of the character of building permitted. The houses may have variety and individuality and may be the work of many different architects, but they must have similar character if beauty of the tract results.

This control is exercised in part by the practice of development companies

Fig. 193. View of a residence street in Forest Hill Gardens, N. Y. The street is narrow and serves only local traffic, the sidewalk on but one side. The two houses in the center are a part of a group of four with a common dooryard.

in first building sample houses, designed by architects whom they select, and selling afterward; in part, by specifications (or restrictions) as to building area, cost, etc., written into the deed.

REFERENCE BOOKS ON CIVIC PLANNING AND GARDEN CITIES

"The Planning of the Modern City," by Nelson P. Lewis, published by John Wiley & Son.

"A City Plan for the Municipalities of Oakland and Berkeley," by Werner Hegemann. Published by the Chambers of Commerce of Oakland and Berkeley, Cal.

"Preliminary Report for a City Plan for Grand Rapids," by Arnold W. Brunner and John M. Carrere.

"Wacker's Manual of the Plan of of Chicago," by Walter D. Moody. Published by the Chicago Plan Commission.

"What City Planning Commissions Can Do," by Charles Henry Cheney. Published by the California Conference on City Planning, June, 1915.

"The American City Magazine," published by the Civic Press, Tribune Building, New York.

"City Planning," by John Nolen. Published by D. Appleton & Co.

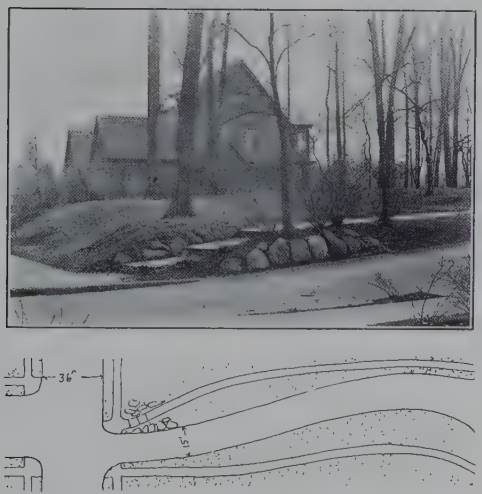


Fig. 194. View of a corner on which an outcropping of rocks has been preserved, thereby enhancing the value of the corner. The plan of the street shows how the street was narrowed to suit the rocks and also how the roadway and walks swerve, not in parallel lines, to accommodate the grades.

Fig. 195. A street in Kew Gardens, Long Island, with well-modulated curves both in curb lines and in bank contours.

CHAPTER X.

PLANNING OF GROUNDS

The yard planning, in the design of many homes, should be considered first, *the house, from the design point of view,* being considered as a mere detail of the entire grounds. This is especially true of unusual sites upon uneven ground when the view of the house will be an accent of the landscape or when the view from the house is very important. But on the average lot the necessities will quickly determine the house placing.

The following are the important considerations in yard planning:

1. The approach.
2. Volume composition.
3. Views.
4. Accessories—benches, walks, rose gardens, etc.
5. Trees and other planting.

THE APPROACH

The entrance from the street to the front door, to a subordinate entrance, or to a tradesmen's entrance, needs to be clearly marked by the conventional methods of paths and walks, showing by their placing and treatment which path leads to which place. One approaching the house should have, if not its best view, at least a good impression. Many English homes, larger than the cottage type, turn their most impressive side and doorway toward the planted grounds in the rear, the formal entrance being comparatively small. The service portion of the house is frequently next the street, the service yard being screened, and merely a narrow hallway conducts a guest from the street entrance to the reception hall.

It is well to have some monument mark the exact spot from which one leaves the public walk and enters the private grounds. The large gate posts of early days did this. (See the Nathan Robinson doorway, Fig. 98, p. 53, and Fig. 57, p. 31.) Steps and their coping serve this purpose well (Figs. 44, 105, 196), or merely an accent of a shrub or

Fig. 196. The entrance stairway of a hillside house in Berkeley, Cal.

two produces the psychological result, as the hedge posts of Figure 56. Sometimes a tree spreads its branches over a driveway entrance.

The designing of the approach for yards of considerable size is an art by itself. Leaving the street one may get a glimpse of the house and come finally into full view, or an enlarged view of it. But the vistas and contours along the entrance drive or path need to be considered and improved by planting of trees or by shifting of walk and drive until the approach is the best possible.

VOLUME COMPOSITION

This refers to a balance of attractive forces about a center or central axis. Perfect balance would exist if lawn occupied half of a yard and house and planted areas the other half. But balance can be obtained in more agreeable ways, as when the line dividing lawn and planted areas is scalloped in an irregular curve. In formal grounds the main axes are marked by very formal planting, and balance requires some object at the end of each axial line. The gateway or steps or a tree group marking the street entrance also has this balancing effect against the mass of the house. The gate-keeper's lodge is an instance of balance of lodge against the mansion. In this case the driveway is the arm of the steelyard, of which the lodge has the long end, the mansion having the short end, the center of the grounds being the fulcrum. In Figure 197 imagine the lodge on low ground and the house on a high rocky plateau. The balancing effect will surely be felt as one swings up either driveway or path. Many more illustrations of balance of objects on main axes and along transverse axes will occur to one who ponders the idea.

ACCESSORIES

Out-of-door living rooms on terraces, benches, walks, sun dials, rose gardens, fountains, garden statuary, summer houses, and the like are elements in the

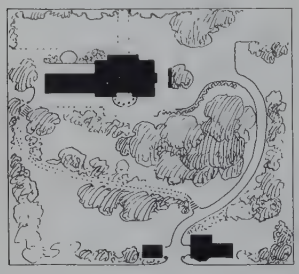


Fig. 197. The volume balance, on the steelyard principle, the lodge balancing the house, with the driveway and path forming the bars of the steelyard.

Fig. 198. A yard in Forest Hill, San Francisco. Showing the effect of massed planting of shrubbery and trees near the building and along the fence, with the lawn spaces left wide. (By courtesy of the Newell-Murdock Co.)

Fig. 199. The park-like effect of open unplanted front yards, on a street at Stanford University, Cal.

yard design; these things have value in themselves and are also important in expressing and maintaining the balance of the design and should always be placed with that in mind. A walk wandering through a grove is given purpose if it leads to some station point, as a bench or summer house. A sun dial and its pedestal may have the same purpose, of a station or accent point. The important principle to remember is that lawn spaces are not to have statues and trees in their centers but at their sides. A wide lawn area is pleasing because of its uninterrupted open space; an object in its center destroys its dignity. Statues are best placed at ends, or near ends, of main axes, not in their intersections. The principle is one of subordination. One should keep in mind the whole yard as volume composition, with its main axes, occupied spaces and open spaces expressed but not obscured by details.

PLACING TREES AND SHRUBS

The placing of trees and shrubs has two purposes: (*a*) as background for the house, (*b*) as attendant, coalescing, or balancing masses of weight and volume. Shrubs, vines, and small plants form a transition between the vertical planes of the house and horizontal surface of the ground, relieving harshness. In the ideal placing the house will usually be partially screened by tree masses; as one walks about, different parts of the house will appear against the sky. There should always be favorable gaps through which the main organic masses of the house may be seen to best advantage, in part silhouetted against the sky, in part merging into three masses. (See Fig. 92, p. 45.) Figure 198 shows good grouping of shrubs along the edge of the lawn and accenting the lower corner of grounds and space near the building. The tree masses also make good backgrounds.

TYPES OF YARD PLANTING

A. The Street of Narrow Small Lots

Effective-looking streets of homes on small lots, say of 50 to 75 feet frontage and 100 feet depth, are obtained by a uniform building line about 30 feet from the sidewalk, with no visible line separating adjoining property in front of the houses. The planting is confined to low plants near the houses and possibly along the sidewalk, the idea being to maintain a continuous wide strip of lawn throughout the block. If trees are

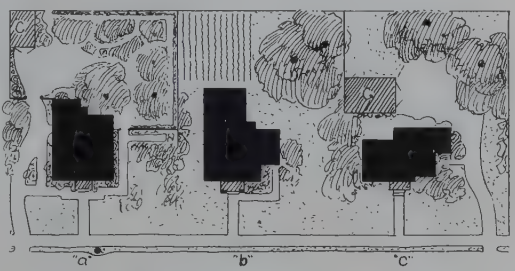


Fig. 200. Plans of three adjoining lots, each about 80′x110′, with a continuous treatment of lawns along the front, and individuality in the rear yards. Yard *a* has the variety of open space, forest walk, and border planting, all in the small compass of a lattice-enclosed rear garden.

in the yards of such a street, they should be near the house or else trimmed high so that one may see beneath them. In either case one should avoid planting a prominent shrub or tree squarely in the middle of the front yard or the lawn. Figure 199 shows an agreeable view across adjoining lawns of open space. The advantage of building to a uniform line and leaving yards unplanted in front is obvious. The street thus virtually becomes a parkway with each house commanding a wide, extended view. Trees may still be planted along the curb line, but the lower branches should be removed.

The houses on such a street may have sufficient privacy in the rear yards. Fig. 200 shows the yard plans of three such yards. In lot "*a*" a lattice six feet high cuts off and surrounds the back yard; the planting is high at the fence and lower toward the center. There is a large tree in the yard and a brick floor beneath it. Narrow paths lead behind the shrubs along the fence. The advantages of a great space are concentrated into this small yard. Another type of planting is shown in the adjoining lot, "*b*." The lawn stretches back along one side to the full depth of the lot, with trees and summer chairs and hammocks visible in the distance from the street. Lot "*c*" has its own individuality. These homes enjoy the privacy and seclusion which each desires, while in their front yards they have ample parks.

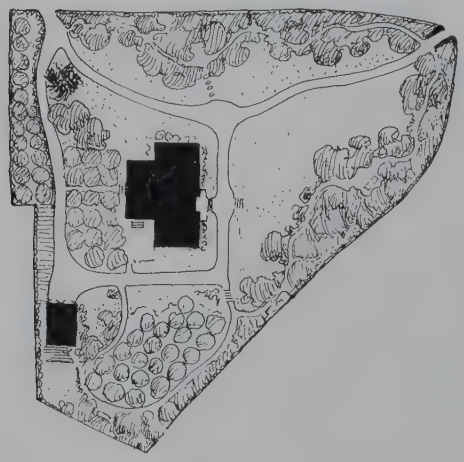


Fig. 201. A yard of about three acres, with the forest effect of a large estate. Note the meandering path through the forest margin, and the wide, sun-bathed, elevated terrace on which the house stands. (The sketch is based, with no pretense at accuracy of detail, upon the home of Mr. George F. Lyon, Burlingame, Cal.)

B. The Enclosed Yard, Moderate-Sized, Nearly Level

With moderate frontages, say 100 to 200 feet, and with good depth, say 200 feet or more, the habit in some communities is to enclose yards on all sides so the passer-by can only get a glimpse of the yard through the driveway, or, if the hedge is low, by looking over. In Figure 201, a high hedge encloses the place, and trees and shrubs make a grove for a space of 20 or 30 feet all about the border. This grove has an irregular contour on its inner line and is threaded by an undulating path. In this yard of some 400 feet in extreme dimension one finds the opportunity of a walk through a forest. The house occupies an open area on a central terrace. Figure 202 shows a beautiful yard in which the house is placed well on one side, and a wide open space, surrounded by irregular planting at the borders, is commanded from the windows of the living room. The street entrance is at the right and not visible in the photograph.

Fig. 202. A side yard with open center and heavily wooded margins, at Claremont, Berkeley, Cal.

Fig. 203. A house at Highlands, near Carmel, Cal., for D. L. James, with all stone walls, built up from the fissured cliffs, with stone quarried on the spot. A house in perfect harmony with its setting, and with the Pacific Ocean for its front yard. Greene & Greene, architects.

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